Health Care Financing Program Statistics

Medicare: Use of Home Health Services, 1978

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Introduction

Overview of Report

This report presents 1978 data on the use of home health agency (HHA) services by aged and disabled persons enrolled in the Medicare program. Time trends are presented for selected financial measures to highlight significant changes which have occurred in program reimbursements for HHA services relative to total Medicare expenditures during the period from 1969 to 1978. Detailed data on the patterns of use of HHA services are available only since 1974. The data for 1978 are presented to highlight two aspects of the program's experiences in the use of HHA services. First, the use of HHA services is described by selected demographic characteristics and residence of the enrollees. Second, differences in the patterns of providing HHA services by type of HHA are analyzed. It was found that agencies differ significantly in the pattern of services furnished and the region of the country where they tend to operate.

The remainder of this introduction describes the home health benefit under Medicare, discusses the measures employed to describe the use of the HHA benefit, the sources and limitations of the data, and provides a summary of the salient findings of the report.

Background

The Medicare program was enacted on July 30, 1965, as title XVIII of the Social Security Act and became effective on July 1, 1966. The program offers two separate but coordinated insurance coverages — Hospital Insurance (HI), also referred to as Part A, and Supplementary Medical Insurance (SMI), also referred to as Part B. Both provide reimbursement for HHA services.

The legislation established requirements for patient eligibility, reimbursable costs, physician participation, and agency eligibility. To qualify for HHA services a beneficiary must be under the care of a physician, confined to his home, and in need of intermittent skilled nursing care or physical or speech therapy. Other reimbursable services are occupational therapy, medical social services, and home health aide services. Covered services also include medical supplies (other than drugs or biologicals) and the use of medical appliances. A physician must determine the need for services and set up a patient care plan for home health services. The HHA providing services must be certified for participation in Medicare.

Coverage under the HI part of the program provides for payment of the reasonable cost of up to 100 home health visits after the start of one benefit period[1] and before the start of another. Payment for these visits can be made within one year following the patient's most recent discharge from a qualifying hospital or a covered skilled nursing facility stay. A qualifying hospital stay is a hospital stay of at least 3 consecutive days. A plan of treatment must be established by the patient's physician within 14 days after discharge from the hospital or skilled nursing facility. The services must be necessary for further treatment of the condition for which the patient received services in the hospital or skilled nursing facility.

Coverage under the SMI part of the program is limited to 100 visits within a calendar year. No prior stay in a hospital or skilled nursing facility is required. Otherwise, the requirements for coverage are the same as those under HI. SMI may be used to cover home health visits after benefits under HI are exhausted. Thus, 100 visits are available under HI for each benefit period but SMI benefits are limited to 100 visits per calendar year.[2]

To provide incentives to greater use of home health services as opposed to inpatient hospital or skilled nursing facility services and to simplify administrative problems relating to the payment for HHA services, the Social Security Amendments of 1972 made the following changes in HHA coverage, which greatly affected utilization and costs:

- Eliminated the 20-percent coinsurance for SMI coverage of home health services furnished on or after January 1, 1973.
- Authorized the Secretary of HEW to establish, by diagnosis, periods of coverage of home health care under the hospital insurance part of Medicare for individuals with specified conditions.
- Allowed payments for services that neither the home health agency nor the beneficiary knew or could reasonably have been expected to know were not covered.
- Extended coverage (including HHA services) to persons receiving social security benefits based on disability or end-stage renal disease. This coverage began in July 1973.

The impact of these changes can be noted in the increased use of HHA services since 1972. This will be discussed below in the section on trends.

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[1] A benefit period begins with the first day a beneficiary receives covered inpatient hospital services. When the beneficiary has been out of a hospital or other facility primarily providing skilled nursing or rehabilitation services for 60 consecutive days (including the day of discharge) a new benefit period starts the next time the beneficiary enters a hospital. There is no limit to the number of benefit periods a beneficiary may have.

[2] The Omnibus Reconciliation Act of 1980 (P.L. 96-499) removed the limits on the number of HHA visits, eliminated the 3-day prior hospitalization requirement for HHA services under HI, eliminated the application of the SMI deductible to HHA services under SMI, and added occupational therapy as a qualifying service for HHA benefits. These provisions became effective July 1, 1981 and did not affect the provision of services described in this report.

Measures of Comparison

In this report when comparisons are made between beneficiary groups in the use of HHA services, emphasis is placed on two measures: persons served per 1000 enrollees and visits per 1000 enrollees. The first measure, persons served per 1000 enrollees, shows the proportion of enrollees with particular demographic characteristics receiving HHA services. The second measure, visits per 1000 enrollees, shows the intensity of use of HHA services within a particular enrollee group. As shown in the following equation,

$$\frac{\text{Visits}}{\text{1000 Enrollees}} = \frac{\text{Persons served}}{\text{1000 Enrollees}} \times \frac{\text{Visits}}{\text{Persons served}}$$

the second measure reflects the combined effect of the proportion of enrollees receiving HHA services and the number of visits received by those served.

Differences between population groups in the dollar value of the services used (charges) and the financial benefit (reimbursements) derived from the Medicare program are also matters of interest. Thus, both charges and reimbursements are used to describe the financial aspects of providing HHA services. Charges for services are based on a schedule of charges which is applicable to all users of the agency's services. The distribution of the charges to different classes of users is the basis for apportioning the agency's costs of providing services to each class. This is the basis on which Medicare's reimbursements for services to Medicare enrollees are computed. Interim payments are based on projections of the Medicare usage. This is subject to adjustment at the end of the fiscal year upon audit of the agency's cost report. Since HHAs submit bills for all services furnished, charge data permits comparison of the total dollar value of the services consumed by different enrollee categories. Under SMI, the enrollee must meet a deductible ($60 in 1978) before he/she qualifies for reimbursements. Therefore, the amount of financial benefit derived from the HHA services used under SMI is affected by the use of other SMI-covered services, particularly physician services. In this report, visit charges per 1000 enrollees is the measure used for such comparisons since visits by nurses, home health aides, physical and speech therapists constitute the chief services furnished by HHAs. This measure is particularly relevant when making comparisons between geographic areas since the charges per visit can differ. Though areas may differ in the intensity of use of services, differences in charges affect the economic value of the services used.

Reimbursements to HHAs are based on the reasonable costs of furnishing services to Medicare beneficiaries. Reimbursements are a direct measure of the HHA benefits received by the different beneficiary groups. The relationship of reimbursements to charges differs among agencies. While the relationship of agency charges relative to costs varies widely across agencies, within an agency charges must be the same for all of the agency's clients. As will be noted later in this report, agencies differ significantly in the percentage of charges reimbursed.

Sources and Limitations of the Data

Data in this report were obtained from billing forms (see Appendix A) submitted by home health agencies for Medicare beneficiaries receiving reimbursable services. The data are based on a sample of bills submitted and recorded in HCFA through December 1979. The estimates are based on a 40 percent sample of the enrolled population. The sample counts for 1978 have been inflated to give an estimate of the use of home health services as of that date. Because the estimates are based on a sample, they are subject to sampling variability. Standard error tables are presented in Appendix B. The file is incomplete to the extent that approximately 2 percent of the bills for 1978 had not been submitted for payment as of December 1979.

Only payments for covered services provided to beneficiaries are reflected in the amounts reimbursed; costs of program administration, deductibles, (for Part B services) and non-covered services are excluded.

Payments for home health services shown in this report are based on interim rates that are adjusted after the end of the accounting year on the basis of reasonable costs of operation.

Information from the billing form is matched to the beneficiary enrollment file to provide data on age, race, sex and residence and to a master provider file which describes the characteristics of each agency.

Major Findings

Reimbursement Trends, 1969-1978

- In 1969, Medicare reimbursements for HHA services amounted to $81 million. By 1971, reimbursements fell to $57.2 million, the lowest amount reimbursed for HHA services in any year since the data became available in 1969. By 1978, total reimbursements for HHA services reached $435.3 million, an average annual rate of increase, between 1971 and 1978, of almost 34 percent.
- The increase in HHA reimbursements from $368.3 million in 1977 to $435.3 million in 1978, 18 percent, was the lowest year-to-year rate of increase since 1972. In the same period, total Medicare reimbursements increased 15 percent. Thus, as a percent of total Medicare reimbursements, HHA reimbursement services increased slightly from 1.75 percent in 1977 to 1.80 percent in 1978. This may indicate a leveling off of the rate of increase in HHA reimbursements relative to total Medicare reimbursements.

Trends in the Use of HHA Services, 1974-1978

- Between 1974 and 1978, the number of enrollees using HHA services increased from about 393,000 to 770,000 (about 18.3 percent annually). The proportion of Medicare enrollees using HHA services in 1978 (28.3 per 1000) was the highest since data were published in 1974 (16.5 per 1000) — an increase of 72 percent between 1974 and 1978 (an average annual increase of 14.5 percent).

- The total number of HHA visits furnished increased from 8.1 million in 1974 to 17.3 million in 1978, an average annual rate of increase of 20.9 percent.
- The average number of HHA visits furnished to persons served in 1978 (22.5) has been relatively stable since 1976. In 1974, the average number of visits per person served was 20.6. The rate of visits received by Medicare enrollees in 1978 (639 per 1000 enrollees) was 88 percent more than the rate in 1974 (340 per 1000), reflecting, mainly, the higher proportion of enrollees using HHA services.
- Charges for HHA services increased at an average annual rate of almost 36 percent between 1974 ($147.5 million) and 1978 ($501 million).
- Reimbursements for HHA services tripled between 1974 ($144.6 million) and 1978 ($435.3 million), an average annual increase of almost 32 percent.

Use of HHA Services by Demographic and Program Characteristics, 1978

- The user rate among the aged (29.3 per 1000 enrollees) was 44 percent higher than among the disabled (20.3 per 1000). The visit rate among the aged (653 per 1000 enrollees) was 28 percent higher than for the disabled (512 per 1000). The reimbursement rate among the aged ($16,400 per 1000 enrollees) was 25 percent higher than for the disabled ($13,100 per 1000).
- Among the aged, the user rate increased with age. The rate among the aged increased from 11.6 per 1000 among those 65-66 years of age to 61.1 per 1000 among those 85 and over. The visit rate increased fivefold from 248 per 1000 enrollees among those 65-66 years to 1388 per 1000 among those 85 and over. The reimbursement rate among enrollees 85 and over ($33,700 per 1000) was five times greater than for those 65-66 ($6,400 per 1000).
- Non-whites had a higher user rate (32.7 per 1000 enrollees) than whites (27.9 per 1000). The visit rate among non-whites (782 per 1000 enrollees) was 25 percent higher than for whites (625 per 1000). Prior to 1977, whites had higher user and visit rates. The reimbursement rate among non-whites ($21,100 per 1000 enrollees) was 36 percent greater than for whites ($15,500 per 1000).
- Enrollees living in metropolitan areas have a user rate (31.5 per 1000 enrollees) that is 45 percent higher than those living in nonmetropolitan areas (21.7 per 1000). The visit rate among enrollees in metropolitan areas (695 per 1000) is 37 percent greater than for enrollees in nonmetropolitan areas (505 per 1000). Since the average charge per visit in metropolitan areas ($28) is higher than in nonmetropolitan areas ($23) there is a large difference in the financial value of the HHA benefit between the two areas. Enrollees in metropolitan areas receive reimbursements ($18,200 per 1000) that is 67 percent higher than for those in nonmetropolitan areas ($10,900 per 1000).

Geographic Distribution of Home Health Agencies by Type of Agency, 1978

- Almost 43 percent of the visiting nurse associations (VNA) were located in the New England States where they constituted almost two-thirds of all HHAs. About 61 percent of VNAs were located in the Northeast region.
- Government agencies constituted the dominant type of agency in the less densely populated areas of the country. Government agencies constituted 65 percent of the agencies located in the West North Central, East South Central, West South Central, and Mountain census divisions.
- Over 90 percent of the proprietary agencies were located in the South and West. In the West they constituted about a fourth of all HHAs.
- About 57 percent of the private nonprofit agencies were located in the South where they constituted 63 percent of all HHAs.

Persons Served and Visits by Type of Agency and Residence, 1978

- In New England, VNAs served over three-fourths of the persons receiving home health services and provided the same proportion of the home health visits.
- About 70 percent of the persons served and visits furnished by proprietary agencies were in the West South Central and Pacific States.
- Private nonprofit agencies were most active in the South. About 56 percent of the persons served and visits furnished by these agencies were in the South. The agencies served 39 percent of the persons receiving home health visits in the South and furnished 46 percent of the visits.
- Government agencies were the only type that were engaged mainly in nonmetropolitan areas.
  - Government agencies served 44 percent of the persons served in nonmetropolitan areas and accounted for 38 percent of the reimbursements paid on behalf of persons in nonmetropolitan areas.
  - Over half of the persons served, visits furnished, and revenues generated by government agencies were in nonmetropolitan areas. Among the other agencies, more than 75 percent of their activity took place in metropolitan areas.

Patterns of Services and Reimbursements by Type of Agency, 1978

- The data indicate that the patterns of services furnished by private nonprofit agencies differ sufficiently from the patterns shown by other types of agencies to warrant administrative attention and evaluation of these differences.
  - Clients served by private nonprofit agencies received the highest average number of visits (27.8), had the highest average charge per visit ($34), and incurred the highest average total visit charges ($942) compared to those served by other type agencies.

- The average total visit charges incurred by persons served by private nonprofit agencies were over 50 percent above the national average ($617).
- Private nonprofit agencies were the only type that furnished over half of their visits to and generated half their reimbursements from persons receiving 50 or more visits. Most of the services furnished by the other type agencies were to persons who received less than 50 visits.
- At every percentile, persons served by private nonprofit agencies received a higher number of visits than did persons served by other types of agencies.

Organization of the Report

Of the sections which follow, the first section discusses trends in the amounts reimbursed for HHA services for the period from 1969 to 1978. Trends in the use of HHA services by geographic areas are discussed for the period from 1974 (the first year that the data were tabulated) to 1978. The second discusses demographic differences in the use of HHA services. The third analyzes the patterns of providing HHA services by type of agency. This section discusses the distribution of agencies and the differences in the distribution of the different types of HHA visits provided. The fourth presents the conclusions drawn from the findings of this report.

[3] Administration of the Medicare Program was transferred to the Health Care Financing Administration in March 1977.

Trends

Reimbursement Trends, 1969-1978

Table 1 compares the amounts reimbursed by Medicare for HHA services to the total Medicare reimbursements for the years 1969 to 1978. During this period, HHA reimbursements increased from $81.1 million to $435.3 million, an average annual increase of 20.5 percent. Because of administrative actions taken during this period reimbursements for HHA services followed a somewhat erratic course.

Policy guidelines issued in 1969 by the Social Security Administration[3] defined more precisely the conditions for which reimbursement for HHA services would be allowed. As a result, HHA reimbursements dropped 23 percent between 1969 ($81.1 million) and 1970 ($62.7 million). HHA reimbursements dropped a further 9 percent (to $57.2 million) in 1971 and constituted only three-fourths of one percent of total Medicare reimbursements.

Reimbursements for home health services increased significantly in 1972 and in each subsequent year. The increase in the use of home health services after 1972 was stimulated by the provisions of the 1972 amendments to the Social Security Act which expanded payments and coverage for home health care and extended Medicare coverage to disabled persons and those with end-stage renal disease. By 1974, HHA reimbursements ($144.6 million) constituted about the same proportion of total Medicare payments as in 1969.

TABLE 1
Total Medicare Reimbursements, Reimbursements for Home Health Services, and Number of Home Health Visits Under Medicare, Calendar Years 1969-1978
In Millions

Year	Total Medicare Reimbursements[1]		Home Health Agency Reimbursements[1]			Home Health Visits	
	Amount	Percent Change	Amount	Percent Change	Percent of All Medicare Reimbursements	Number	Percent Change
1969[2]	$6,284.0	——	$81.1	——	1.29	8.5	——
1970	6,772.4	7.8	62.7	-22.7	.93	6.0	-29.9
1971	7,486.9	10.6	57.2	-8.8	.76	4.8	-20.5
1972	8,217.1	9.8	66.2	15.7	.81	5.2	9.2
1973	9,637.8	17.3	93.3	40.9	.97	6.4	22.4
1974	11,916.8	23.6	144.6	55.0	1.21	8.2	29.3
1975	14,738.1	23.7	217.8	50.6	1.48	10.8	32.3
1976	17,883.3	21.3	296.3	36.0	1.66	13.5	24.4
1977	20,991.2	17.4	368.3	24.3	1.75	15.5	14.9
1978	24,125.3	14.9	435.3	18.2	1.80	17.3	11.6

[1] The reimbursement amounts shown are based on interim payment. These amounts are adjusted after the end of each provider's accounting year on the basis of reasonable costs of operations. Retroactive reimbursements are excluded from the data in these tables.

[2] Comparative data for years prior to 1969 not available.

Source: Health Care Financing Administration, unpublished data. Amounts are for year in which expenses were incurred based on bills processed through December, 1979. Thus, data for most recent years are less complete than data for earlier years.

Between 1975 and 1978, reimbursements for home health services doubled (from $217.8 million to $435.3 million). During the same period, total Medicare reimbursements increased 64 percent (from $14.7 billion to $24.1 billion). From its low point in 1971 to 1978, HHA reimbursements increased at an average annual rate of 34 percent.

In 1978, HHA reimbursements constituted 1.8 percent of total Medicare reimbursement. The 18 percent year-to-year increase in HHA reimbursements between 1977 ($368 million) and 1978 ($435 million) was the lowest since 1972. Between 1977 and 1978, overall Medicare reimbursements increased about 15 percent. This may indicate a stabilization of the rate of increase in HHA reimbursements relative to total Medicare reimbursements.

Trends in the Use of HHA Services, 1974-1978

Table 2 shows the patterns of beneficiary use of HHA services in 1978 by census region and division and State of residence.

Table 3 places the 1978 census region experiences in the context of trends since 1974. Detailed data on the use of HHA services were not tabulated for years prior to 1974. In the following analysis, trends in the overall use of HHA services are presented first and followed by a discussion of trends at the regional level.

All Areas

In 1978, almost 770,000 Medicare enrollees used HHA services, an increase of 96 percent from the 393,000 in 1974 (an average annual increase of 18.3 percent). The proportion of enrollees using HHA services in 1978 (28.3 per 1000) was 72 percent higher than in 1974 (16.5 per 1000)—an average annual increase of 14.5 percent.

About 17.3 million home health visits were provided in 1978 compared to 8.1 million in 1974, an overall increase of 114 percent (an average annual increase of 20.9 percent). The rate of visits provided to Medicare enrollees also increased significantly between 1974 and 1978, from 340 to 639 per 1000 enrollees, an 88 percent increase. This reflected primarily the larger proportion of enrollees receiving HHA services, the average number of visits per person served increased only from 20.6 in 1974 to 22.5 in 1978. The average number of visits per person served has been relatively stable since 1976.[4]

Total charges for HHA services in 1978 reached the half billion dollar mark (almost $501 million). This represents an increase of 240 percent since 1974 ($147.5 million), an average annual increase of almost 36 percent. Charges for home health visits ($475 million) constituted 95 percent of total charges in 1978 (the remaining charges covered durable medical equipment and supplies, except for drugs and biologicals, furnished by HHAs). The average charge per visit increased from $17 in 1974 to $27 in 1978. The average number of visits per user also increased, from 20.6 in 1974 to 22.5 in 1978. Each person served in 1978 incurred an average of $617 in visit charges—an increase of 76 percent since 1974 ($350). Reflecting chiefly the increased proportion of enrollees receiving HHA services, the visit charges rate increased from about $5,800 per 1000 enrollees in 1974 to about $17,500 per 1000 in 1978—more than tripling during the period and an average annual rate of increase of almost 32 percent.

The increase in total visit charges between 1974 and 1978 can be explained by using the following equation:

$$\text{Visit Charges} = \text{Persons Served} \times \frac{\text{Visits}}{\text{Persons Served}} \times \frac{\text{Charge}}{\text{Visit}}$$

The average annual percent increase in visit charges equals the sum of the average annual percent increases of the three factors on the right plus an interaction term. The interaction effect is distributed proportionally among the three defined factors (Klarman, 1970). The increase in visit charges between 1974 and 1978 is attributable to the three factors as follows:

Increase in persons receiving HHA visits	55.8 percent
Increase in the average number of visits per person served	6.7 percent
Increase in the average charge per visit	37.5 percent

Thus, about 56 percent of the increased charges for HHA visits is attributable to the increased number of persons receiving HHA visits and only 37.5 percent to the increase in charges for visits. The increase in the number of visits per user accounted for less than 7 percent of the increase in total visit charges.

Total reimbursements for HHA services tripled between 1974 ($144.6 million) and 1978 ($435.3 million). The reimbursement rate during this period increased from $5900 to $16,000 per 1000 enrollees—an average annual increase of about 28 percent. As a percent of charges, reimbursement decreased from 96 percent in 1974 to 87 percent in 1978. This may reflect the impact of the 1972 Amendments to the Social Security Act which mandated that Medicare would pay providers the lower of reasonable cost or customary charge for services rendered. In response, providers increased charges for services which had been provided to the public at less than full cost, but for which Medicare paid on the basis of cost. In addition, this trend may reflect the growth of proprietary and private nonprofit agencies, which, as will be discussed later in this report, tend to have a lower proportion of charges reimbursed than the other type agencies.

[4] Because a large number of persons received relatively few visits, the average number of visits per person served is much larger than the median (50th percentile) number of visits per person. In 1978, the median number of visits was 12.0. That is, half of the persons receiving HHA visits received 12 visits or less.

TABLE 2
Home Health Agency Services: Persons Served, Visits, Charges, and Reimbursements by Census Region and Division, and State, 1978
(Enrollment, Persons Served, Number of Visits, Total Charges, Total Reimbursements, Charges and Reimbursements per 1,000 Enrollees in Thousands)

Area of Residence	Enrollment	Persons Served		Visits		Charges					Reimbursements	
								Visit Charges				
		Number	Per 1,000 Enrollees	Number	Per Person Served	Per 1,000 Enrollees	Total [2]	Total	Per Visit	Per Person Served	Per 1,000 Enrollees	Amount	Per 1,000 Enrollees
All areas	27,164.2	769.7	28.3	17,345	22.5	639	$500,747	$474,498	$27	$617	$17.5	$435,322	$16.0
United States [1]	26,614.4	756.0	28.4	16,889	22.3	635	478,707	$455,113	27	602	17.1	422,297	15.9
Regions													
Northeastern States	6,407.3	253.5	39.6	5,846	23.1	912	145,426	138,754	24	547	21.7	134,378	21.0
North Central States	7,071.1	161.9	22.9	3,486	21.5	493	97,300	94,412	27	583	13.4	84,472	11.9
South	8,708.0	218.8	25.1	5,223	23.9	600	163,692	152,708	29	698	17.5	136,498	15.7
West	4,401.7	121.9	27.7	2,334	19.1	530	72,289	69,239	30	568	15.7	66,948	15.2
Divisions													
The Northeastern States													
New England	1,585.0	72.4	45.7	1,790	24.7	1,129	34,651	34,003	19	470	21.5	32,849	20.7
Middle Atlantic	4,822.2	181.1	37.6	4,056	22.4	841	110,775	104,751	26	578	21.7	101,529	21.1
The North Central States													
East North Central	4,766.0	113.6	23.8	2,331	20.5	489	70,221	68,861	30	606	14.4	60,883	12.8
West North Central	2,305.1	48.3	21.0	1,155	23.9	501	27,079	25,552	22	529	11.1	23,589	10.2
The South													
South Atlantic	4,399.6	121.7	27.7	2,722	22.4	619	85,635	81,823	30	672	18.6	75,185	17.1
East South Central	1,776.8	47.7	26.9	1,233	25.8	694	38,325	34,138	28	716	19.2	28,865	16.2
West South Central	2,531.5	49.4	19.5	1,268	25.7	501	39,732	36,746	29	744	14.5	32,448	12.8
The West													
Mountain	1,066.3	27.1	25.4	553	20.4	519	13,542	12,781	23	472	12.0	12,646	11.9
Pacific	3,335.4	94.8	28.4	1,781	18.8	534	58,747	56,458	32	596	16.9	54,302	16.3
States													
New England													
Maine	152.4	7.0	45.9	140	20.0	919	2,980	2,921	21	417	19.2	2,818	18.5
New Hampshire	107.1	4.9	45.8	99	20.2	924	1,600	1,592	16	325	14.9	1,538	14.4
Vermont	62.5	4.0	64.0	101	25.3	1,616	1,753	1,746	17	437	27.9	1,698	27.2
Massachusetts	755.7	32.5	43.0	841	25.9	1,113	15,783	15,457	18	476	20.5	14,847	19.6
Rhode Island	132.9	5.6	42.1	122	21.8	918	2,389	2,300	19	411	17.3	2,337	17.6
Connecticut	374.4	18.3	48.9	488	26.7	1,303	10,145	9,987	20	546	26.7	9,610	25.7
Middle Atlantic													
New York	2,310.8	69.6	30.1	1,533	22.0	663	48,629	45,657	30	656	19.8	43,792	19.0
New Jersey	902.0	36.8	40.8	985	26.8	1,092	24,284	23,221	24	631	25.7	24,003	26.6
Pennsylvania	1,609.4	74.7	46.4	1,538	20.6	956	37,862	35,872	23	480	22.3	33,733	21.0
East North Central													
Ohio	1,252.9	32.8	26.2	607	18.5	484	15,034	14,642	24	446	11.7	14,316	11.4
Indiana	618.8	7.5	12.1	139	18.5	225	3,133	2,940	21	392	4.8	2,947	4.8
Illinois	1,311.1	34.9	26.6	906	26.0	691	32,062	31,570	35	905	24.1	25,359	19.3
Michigan	990.0	24.6	24.9	405	16.5	409	13,762	13,621	34	554	13.8	12,538	12.7
Wisconsin	593.3	13.9	23.4	273	19.6	460	6,230	6,088	22	438	10.3	5,722	9.6
West North Central													
Minnesota	497.7	7.4	14.9	156	21.1	363	3,717	3,598	23	486	7.2	3,548	7.1
Iowa	407.6	6.2	15.2	122	19.7	299	1,669	1,699	14	269	4.1	1,624	4.0
Missouri	687.3	24.8	36.1	678	27.3	986	17,503	16,330	24	658	24	14,587	21.2
North Dakota	84.6	0.8	9.5	20	25.0	236	346	330	17	413	3.9	294	3.5
South Dakota	96.0	1.1	11.5	25	22.7	260	346	335	13	305	3.5	332	3.5
Nebraska	214.3	4.0	18.7	67	16.8	313	1,651	1,504	22	376	7.0	1,598	7.5
Kansas	317.6	4.1	12.9	88	21.5	277	1,815	1,784	20	435	5.6	1,607	5.1
South Atlantic													
Delaware	62.3	2.1	33.7	53	25.2	851	1,011	968	18	461	15.5	927	14.9
Maryland	398.7	11.9	29.9	208	17.5	522	5,886	5,780	28	486	14.5	5,640	14.1
District of Columbia	78.2	3.1	39.6	58	18.7	742	1,755	1,747	30	564	22.3	1,625	20.8
Virginia	524.7	7.2	13.7	136	18.9	259	3,515	3,494	26	485	6.7	3,392	6.5
West Virginia	267.6	5.4	20.2	112	20.7	419	2,727	2,553	23	473	9.5	2,258	8.4
North Carolina	632.8	14.1	22.3	330	23.4	521	7,452	6,923	21	491	10.9	7,311	11.6
South Carolina	306.0	9.3	30.4	176	18.9	575	6,135	5,785	33	622	18.9	5,510	18.0
Georgia	551.5	8.8	16.0	194	22.0	352	6,877	6,334	33	720	11.5	5,504	10.0
Florida	1,577.9	59.8	37.9	1,456	24.3	923	50,276	48,238	33	807	30.6	43,018	27.3
East South Central													
Kentucky	446.6	8.5	19.0	148	17.4	331	4,675	4,147	28	488	9.3	4,161	9.3
Tennessee	549.6	13.4	24.4	330	24.6	600	10,700	9,493	29	708	17.3	7,849	14.3
Alabama	467.0	12.5	26.8	297	23.8	636	8,064	7,521	25	602	16.1	6,926	14.8
Mississippi	313.6	13.5	43.1	458	33.9	1,460	14,886	12,977	28	961	41.4	9,930	31.7
West South Central													
Arkansas	333.2	3.1	9.3	47	15.2	141	1,406	1,332	28	430	4.0	1,331	4.0
Louisiana	425.7	12.6	29.6	407	32.3	956	11,846	10,289	25	817	24.2	9,285	21.8
Oklahoma	390.2	4.4	11.3	63	14.3	161	2,074	2,006	32	456	5.1	1,782	4.6
Texas	1,382.4	29.3	21.2	750	25.6	543	24,406	23,119	31	789	16.7	20,050	14.5
Mountain													
Montana	90.0	2.3	25.6	38	16.5	422	762	746	20	324	8.3	677	7.5
Idaho	97.0	3.3	34.0	77	23.3	794	1,800	1,546	20	468	15.9	1,690	17.4
Wyoming	38.9	1.0	25.7	28	28.0	720	574	555	20	555	14.3	480	12.3
Colorado	254.1	8.1	31.9	164	20.2	645	4,498	4,431	27	547	17.4	4,257	16.8
New Mexico	119.6	3.7	30.9	67	18.1	560	1,702	1,618	24	437	13.5	1,569	13.1
Arizona	293.6	5.4	18.4	99	18.3	337	2,629	2,385	24	442	8.1	2,427	8.3
Utah	110.0	2.2	20.0	47	21.4	427	828	775	16	352	7.0	811	7.4
Nevada	83.1	1.2	19.0	33	27.5	523	748	724	22	603	11.5	735	11.6
Pacific													
Washington	441.6	11.7	26.5	199	17.0	451	6,063	5,875	30	502	13.3	5,368	12.2
Oregon	313.0	7.9	25.2	147	18.6	470	4,995	4,639	32	587	14.8	4,710	15.0
California	2,496.3	72.9	29.2	1,395	19.1	559	46,404	44,770	32	614	17.9	42,966	17.2
Alaska	10.9	0.1	9.1	2	20.0	183	66	66	33	660	6.1	66	6.1
Hawaii	73.6	2.1	28.5	38	18.1	516	1,219	1,107	29	527	15.0	1,194	16.2
Outlying Areas [3]	649.7	13.6	20.9	457	33.6	703	22,040	19,384	42	1,425	29.8	13,026	20.0

Note: Detail may not add to totals because of rounding.

[1] Aged and Disabled Beneficiaries Enrolled for Hospital Insurance (HI) and/or Supplementary Medical Insurance (SMI), July 1, 1978

[2] Includes charges for durable medical equipment and supplies in addition to visit charges.

[3] Includes Puerto Rico, Virgin Islands, Guam, and other outlying areas, and residence unknown.

TABLE 3
Home Health Agency Services: Persons Served, Visits, Charges, and Reimbursements by Census Region, 1974-1978
(Persons Served, Number of Visits, Total Charges, Total Reimbursements, Charges and Reimbursements per 1,000 Enrollees in Thousands)

Geographic Area and Year	Persons Served		Visits			Charges					Reimbursements[1]	
							Visit Charges					
	Number	Per 1,000 Enrollees	Number	Per Person Served	Per 1,000 Enrollees	Total	Total	Per Visit	Per Person Served	Per 1,000 Enrollees	Amount	Per 1,000 Enrollees
Total, all areas												
1974	392.7	16.5	8,070	20.6	340	$147,499	$137,406	$17	$350	$5.8	$141,464	$5.9
1975	499.6	20.2	10,805	21.6	436	227,001	211,994	20	424	8.6	215,497	8.7
1976	588.7	22.9	13,335	22.7	520	312,325	292,697	22	497	11.4	289,851	11.3
1977	689.7	26.1	15,548	22.5	587	407,827	385,224	25	559	14.6	363,785	13.8
1978	769.7	28.3	17,345	22.5	639	500,747	474,498	27	617	17.5	435,322	16.0
Percent Increase 1974-1978	96.0	71.5	114.9	9.2	87.9	239.5	245.3	58.8	76.0	202.6	207.7	171.2
Northeast												
1974	143.8	24.4	2,899	20.2	493	50,376	47,166	16	328	8.0	48,492	8.2
1975	175.9	29.2	3,655	20.8	607	71,259	67,848	19	386	11.3	68,226	11.3
1976	198.1	32.2	4,201	21.2	683	89,853	85,617	20	434	13.9	84,938	13.8
1977	229.7	36.5	5,106	22.2	810	118,723	113,094	22	492	18.0	110,928	17.6
1978	253.5	39.6	5,846	23.1	912	145,426	138,754	24	547	21.7	134,378	21.0
Percent Increase 1974-1978	76.3	62.3	101.7	14.4	85.0	188.7	194.2	50.0	66.8	171.3	177.1	156.1
North Central												
1974	82.8	12.7	1,527	18.4	234	25,486	25,082	16	303	3.8	24,298	3.7
1975	101.5	15.2	1,958	19.3	293	37,315	36,012	18	355	5.4	35,186	5.3
1976	118.6	17.4	2,446	20.6	358	54,195	52,498	21	443	7.7	50,579	7.4
1977	142.2	20.4	3,029	21.3	435	76,974	74,720	25	525	10.7	69,640	10.0
1978	161.9	22.9	3,486	21.5	493	97,300	94,412	27	583	13.4	84,472	11.9
Percent Increase 1974-1978	95.5	80.3	128.3	16.9	110.7	281.8	276.4	68.8	92.4	252.6	247.7	221.6
South												
1974	102.3	13.6	2,417	23.6	321	47,274	42,332	18	414	5.6	45,338	6.0
1975	139.0	17.7	3,519	25.3	448	81,060	72,831	21	524	9.3	75,675	9.6
1976	171.7	21.2	4,519	26.3	558	115,434	104,877	23	611	12.9	103,794	12.8
1977	199.3	23.7	4,870	24.4	578	137,432	127,148	26	638	15.1	117,713	14.0
1978	218.8	25.1	5,223	23.9	600	163,692	152,708	29	698	17.5	136,498	15.7
Percent Increase 1974-1978	113.9	84.6	116.1	1.3	86.9	246.3	260.7	61.1	68.6	212.5	201.1	161.7
West												
1974	60.2	15.9	1,087	18.1	288	21,425	20,199	19	336	5.3	20,415	5.4
1975	78.4	19.9	1,495	19.1	380	32,908	31,523	21	402	8.0	31,656	8.0
1976	93.1	22.8	1,916	20.6	470	46,732	44,756	23	481	11.0	44,640	10.9
1977	108.3	25.5	2,188	20.2	515	60,183	57,686	26	533	13.6	56,317	13.3
1978	121.9	27.7	2,334	19.1	530	72,289	69,239	30	568	15.7	66,948	15.2
Percent Increase 1974-1978	102.5	74.2	114.7	5.5	84.0	237.4	242.8	57.9	69.1	196.2	227.9	181.5
Other areas												
1974	3.7	13.2	140	38.3	506	2,938	2,627	19	710	9.4	2,918	10.4
1975	4.9	16.3	177	36.0	587	4,459	3,732	21	762	12.4	4,254	14.2
1976	7.3	23.0	252	34.7	798	6,111	4,948	20	678	15.6	5,899	18.6
1977	10.2	29.9	355	34.8	1,040	14,514	12,575	35	1,233	36.9	9,187	26.9
1978	13.6	20.9	457	33.6	703	22,040	19,384	42	1,425	29.8	13,026	20.0
Percent Increase 1974-1978	267.6	58.3	226.4	-14.0	38.9	650.2	637.9	121.1	100.7	217.0	346.4	92.3

[1]Reimbursements shown here differ from those shown in Table I. Amounts shown in Table 1 are based on bills processed through December 1979. Amounts shown in this table are based on those shown in the reports for the applicable periods. These amounts are used to present comparability to corresponding bill processing periods.

Regional Trends, 1974-1978

In 1978, the Northeast continued to show, as it has since at least 1974, the highest rate of enrollee use of HHA services among the regions. The rate of enrollee use of HHA services in the Northeast is so much greater than in the other region that, despite having the lowest average charge per visit, enrollees in the Northeast receive the highest rate of reimbursement for HHA services. At the opposite extreme, the North Central region has shown the lowest rate of enrollee use of HHA services since 1974 and the enrollees there have received the lowest rate of reimbursement.

All regions have shown an increase in the rate of enrollees using HHA services. Though, in 1978, the Northeast showed a user rate (39.6 per 1000 enrollees) that was far higher than the other regions (a range of 23 to 28 per 1000), it has shown the slowest rate of increase since 1974. The user rate in the Northeast increased 62 percent between 1974 (24.4 per 1000) and 1978 (39.6 per 1000). In the other regions, the increase ranged between 74 and 85 percent—the fastest rate being in the South which increased from 13.6 users per 1000 enrollees in 1974 to 25.1 per 1000 in 1978. Throughout this period, the North Central region had the lowest user rate—22.9 per 1000 enrollees in 1978.

In addition to having the highest user rate, the average enrollee using HHA services in the Northeast during 1978 received 23.1 visits—only slightly below that of the South, 23.9 visits per person served. Thus in 1978, the visit rate in the Northeast (912 visits per 1000 enrollees) was over 50 percent higher than the next highest region, the South (600 visits per 1000 enrollees) and about double the North Central region (493 visits per 1000 enrollees). Almost the exact same relationship prevailed in 1974. In the interim, however, the increase in the visit rate in the North Central region was higher (110 percent) than the other regions (about 85 percent).

During the period 1974 to 1978, the average charge per visit in the Northeast was below the national average and was the lowest among the regions in 1978. Thus, the average user of HHA visits in the Northeast has incurred the lowest total visit charges since 1976 (in 1978, $547). However, since the Northeast has the highest proportion of such "average" users among its enrollees, the total visit charges per 1000 enrollees has been highest in the Northeast since 1974 ($21,700 in 1978). Parallel to this, since 1974 the reimbursement rate also has been highest in the Northeast ($21,000 per 1000 enrollees in 1978). Since 1974, the average number of visits per user has been highest in the South (23.9 per user in 1978). During this period, the average charge per visit in the South has been above the national average. Thus, the average recipient of HHA visits in the South has been incurring the highest average total visit charges ($698 in 1978—20 percent above the next highest region). However because of the lower proportion of enrollees served, the average charges and reimbursement per 1000 enrollees has been lower than that of the Northeast. Because of its lowest user rate, the North Central region has had the lowest rates of incurred charges and reimbursement per 1000 enrollees since 1974.

Use of HHA Services by Demographic and Program Characteristics, 1978

Table 4 shows the use of HHA services in 1978, by age, sex, race, and Medicare status of the enrollees. Table 5 shows the use of HHA services by metropolitan and nonmetropolitan residence in the census divisions. Table 6 shows the use of HHA services by persons using services under HI, SMI, or both.

AGE

Persons under 65 years of age are persons eligible for Medicare benefits because of disability. The comparison of their pattern of use to the aged will be deferred to discussion of differences by Medicare status. Table 4 shows among the aged, use of HHA services increased with age by all measures of use. The user rate increased over fivefold from 11.6 users per 1000 enrollees among those 65-66 years of age to 61.1 per 1000 for those 85 and over. Since the average number of visits per user was fairly constant, the differences in the visit rate parallel the user rate, showing about a fivefold difference in the visit rate between those 65-66 years (248 visits per 1000 enrollees) and those 85 years and over (1388 visits per 1000). This difference is carried through the charge and reimbursement rates. Enrollees 65-66 years received about $6,400 per 1000 in reimbursements compared to $33,700 for those 85 and over. The user rate for every major Medicare benefit increased with age in 1978.[5]

SEX

Since women enrollees tend to be older than the enrolled men, women made more use of HHA services. As shown above, the use of HHA services increased with age. The user rate among women (31.4 per 1000) was 30 percent higher than for men (24.2 per 1000). Women users received on the average, more visits (23.0) than men (21.8). Thus, the visit rate among women (721 per 1000) was 37 percent higher than among men (528 per 1000). Since the average visit charge for men ($28) was slightly higher than for women ($27), the net effect was that the visit charge and reimbursement rates among women were about a third higher than for men. Reimbursements for women were $17,900 per 1000 enrollees compared to $13,500 per 1000 for men.

RACE

Enrollees of other races made greater use of HHA services than did whites. About 90 percent of the enrollees of other races were blacks. About 75 percent of the black enrollees lived in the Northeast and the South. Only 55 percent of the white enrollees lived in these regions. As noted earlier, these were the regions with the highest use of HHA services. Therefore, race differences in the use of HHA services may reflect the regional differences in the patterns of services.[6]

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[5] "Medicare Summary: Use and Reimbursement by Person, 1976-1978" (in press).

[6] Unpublished enrollment data, HCFA. The percentages reflect U.S. data.

TABLE 4
Home Health Agency Services: Persons Served, Visits, Charges, and Reimbursements by Age, Sex, Race, and Medicare Status, 1978
(Visits, Total Charges, Visit Charges, Reimbursements, and Charges and Reimbursements per 1,000 Enrollees in Thousands)

Demographic Characteristics	Users			Visits			Charges					Reimbursements		
								Visit Charges						
	Number of Enrollees	Number	Per 1000 Enrollees	Number	Per User	Per 1,000 Enrollees	Total	Amount	Per Visit	Per User	Per 1,000 Enrollees	Amount	Per User	Per 1,000 Enrollees
Total	27,164,222	769,667	28.3	17,345	22.5	639	$500,747	$474,498	$27	$617	$17.5	$435,322	$566	$16.0
Under Age 65	2,793,236	56,583	20.3	1,429	25.3	512	41,903	39,281	27	694	14.1	36,574	646	13.1
65-66	3,432,186	39,773	11.6	852	21.4	248	25,099	23,747	28	597	6.9	21,977	553	6.4
67-68	3,197,304	49,240	15.4	1,078	21.9	337	31,938	30,252	28	614	9.5	27,797	565	8.7
69-70	2,974,457	54,685	18.4	1,217	22.3	409	35,737	33,795	28	618	11.4	31,254	572	10.5
71-72	2,648,063	58,827	22.2	1,305	22.2	493	38,160	36,184	28	615	13.7	33,275	566	12.6
73-74	2,354,952	63,985	27.2	1,422	22.2	604	41,519	39,521	28	618	16.8	36,128	565	15.3
75-79	4,564,950	163,130	35.7	3,682	22.6	807	106,051	101,025	27	619	22.1	92,383	566	20.2
80-84	3,004,939	149,425	49.7	3,315	22.2	1,103	94,409	89,819	27	601	29.9	82,031	549	27.3
85 and over	2,194,135	134,020	61.1	3,045	22.7	1,388	85,932	80,872	27	603	36.9	73,905	551	33.7
Sex														
Male	11,598,434	280,925	24.2	6,120	21.8	528	181,080	169,607	28	604	14.6	156,412	557	13.5
Female	15,565,788	488,742	31.4	11,225	23.0	721	319,667	304,890	27	624	19.6	278,910	571	17.9
Race														
White	23,866,469	666,710	27.9	14,913	22.4	625	424,929	403,041	27	605	16.9	370,703	556	15.5
All other races	2,570,426	84,020	32.7	2,009	23.9	782	63,800	60,089	30	715	23.4	54,218	645	21.1
Unknown	727,327	18,937	26.0	423	22.3	582	12,018	11,368	27	600	15.6	10,401	549	14.3
Medicare Status														
Aged	24,370,986	713,084	29.3	15,916	22.3	653	458,844	435,217	27	610	17.9	398,748	559	16.4
Disabled	2,793,236	56,583	20.3	1,429	25.3	512	41,903	39,281	27	694	14.1	36,574	646	13.1

TABLE 5
Home Health Agency Services: Persons Served, Visits, Charges, and Reimbursements by Census Division and Metropolitan and Nonmetropolitan Areas, 1978
(Enrollment, Number of Visits, Total Charges, Total Reimbursements, and Charges and Reimbursements per 1,000 Enrollees in Thousands)

Area of Residence and Type of County	Persons Served			Visits			Charges					Reimbursements[1]		
								Visit Charges						
	Enrollment	Number	Per 1,000 Enrollees	Number	Per Person Served	Per 1,000 Enrollees	Total	Total	Per Visit	Per Person Served	Per 1,000 Enrollees	Total	Percent of Charges	Per 1,000 Enrollees
United States	26,577.1	756,047	28.4	16,888	22.3	635	$478,673	$455,087	$27	$602	$17.1	$422,275	88.2	$15.9
Metropolitan	18,277.1	576,097	31.5	12,698	22.0	695	373,846	356,653	28	619	19.5	332,006	88.8	18.2
Nonmetropolitan	8,300.0	179,950	21.7	4,190	23.3	505	104,827	98,435	23	547	11.9	90,269	86.1	10.9
New England	1,584.3	72,383	45.7	1,789	24.7	1,129	34,702	34,048	19	471	21.5	32,881	94.8	20.8
Metropolitan	1,220.2	54,865	45.0	1,367	24.9	1,120	27,139	26,559	19	484	21.8	25,614	94.4	21.0
Nonmetropolitan	364.2	17,498	48.0	422	24.1	1,159	7,562	7,490	18	428	20.6	7,267	96.1	20.0
Middle Atlantic	4,820.5	181,115	37.6	4,067	22.5	844	111,067	105,070	26	580	21.8	101,788	91.6	21.1
Metropolitan	4,099.2	153,978	37.6	3,415	22.2	833	98,242	92,511	27	601	22.6	89,859	91.5	21.9
Nonmetropolitan	721.3	27,137	37.6	652	24.0	904	12,826	12,559	19	463	17.4	11,929	93.0	16.5
East North Central	4,764.7	113,605	23.8	2,338	20.6	491	70,402	69,012	30	607	14.5	61,066	86.7	12.8
Metropolitan	3,406.5	89,865	26.4	1,874	20.9	550	60,020	58,982	31	656	17.3	51,562	85.9	15.1
Nonmetropolitan	1,358.2	23,740	17.5	464	19.5	342	10,382	10,030	22	422	7.4	9,204	88.7	6.8
West North Central	2,304.2	48,343	21.0	1,156	23.9	502	27,143	25,589	22	529	11.1	23,648	87.1	10.3
Metropolitan	982.2	28,390	28.9	673	23.7	685	16,631	15,574	23	549	15.9	15,061	90.6	15.3
Nonmetropolitan	1,322.0	19,953	15.1	483	24.2	365	10,512	10,015	21	502	7.6	8,586	81.7	6.5
South Atlantic	4,397.5	121,660	27.7	2,704	22.2	615	84,929	81,159	30	667	18.5	74,577	87.8	17.0
Metropolitan	2,835.7	91,673	32.3	2,037	22.2	718	66,036	63,450	31	692	22.4	57,638	87.3	20.3
Nonmetropolitan	1,561.8	29,987	19.2	667	22.2	427	18,893	17,710	27	591	11.3	16,939	89.7	10.8
East South Central	1,776.2	47,730	26.9	1,235	25.9	695	38,396	34,205	28	717	19.3	28,929	75.3	16.3
Metropolitan	831.2	22,092	26.6	553	25.0	665	17,750	15,967	29	723	19.2	13,385	75.4	16.1
Nonmetropolitan	945.0	25,638	27.1	682	26.6	722	20,646	18,237	27	711	19.3	15,544	75.3	16.4
West South Central	2,530.4	49,375	19.5	1,270	25.7	502	39,782	36,807	29	745	14.5	32,482	81.7	12.8
Metropolitan	1,473.1	33,650	22.8	855	25.4	580	26,590	24,656	29	733	16.7	21,914	82.4	14.9
Nonmetroplitan	1,057.3	15,725	14.9	415	26.4	393	13,192	12,151	29	773	11.5	10,568	80.1	10.0
Mountain	1,065.1	27,068	25.4	551	20.4	517	13,542	12,786	23	472	12.0	12,639	93.3	11.9
Metropolitan	616.0	17,558	28.5	344	19.6	558	8,853	8,489	25	483	13.8	8,329	94.1	13.5
Nonmetropolitan	449.0	9,510	21.2	207	21.8	461	4,689	4,298	21	452	9.6	4,309	91.9	9.6
Pacific	3,334.0	94,788	28.4	1,779	18.8	534	58,709	56,410	32	595	16.9	54,264	92.4	16.3
Metropolitan	2,812.9	84,025	29.9	1,581	18.8	562	52,585	50,466	32	601	17.9	48,642	92.5	17.3
Nonmetropolitan	521.0	10,763	20.7	198	18.4	380	6,124	5,945	30	552	11.4	5,622	91.8	10.8

[1] Excludes amounts for persons with unknown type residence.

Note: Detail may not add to totals because of rounding.

TABLE 6
Home Health Agency Services: Number and Percent Distribution of Persons Served by Number of Visits and Type of Coverage, 1978
(In Thousands)

Number of Visits	All Visits				Hospital Insurance Only				Supplementary Medical Insurance Only				HI and SMI			
	Persons Served		Visits		Persons Served		Visits		Persons Served		Visits		Persons Served		Visits	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	769.7	100.0	17,345	100.0	494.4	100.0	9,274	100.0	192.4	100.0	3,330	100.0	82.8	100.0	4,741	100.0
1-4	170.9	22.2	426	2.5	113.7	23.0	290	3.1	55.4	28.8	130	3.9	1.8	2.2	6	0.1
5-9	157.0	20.4	1,069	6.2	109.8	22.2	747	8.1	41.2	21.4	280	8.4	6.0	7.2	43	0.9
10-19	173.4	22.5	2,403	13.8	114.8	23.2	1,591	17.2	43.4	22.6	594	17.8	15.2	18.3	218	4.6
20-29	88.8	11.5	2,139	12.3	57.9	11.7	1,394	15.0	19.1	10.0	461	13.8	11.7	14.2	284	6.0
30-39	52.6	6.8	1,792	10.3	34.1	6.9	1,162	12.5	10.2	5.3	348	10.5	8.2	10.0	282	6.0
40-49	33.9	4.4	1,500	8.6	21.1	4.3	934	10.1	6.6	3.4	290	8.7	6.2	7.5	276	5.8
50-99	68.3	8.9	4,693	27.8	38.3	7.8	2,597	28.0	13.6	7.1	952	28.6	16.4	19.8	1,144	24.1
100 or more	24.6	3.2	3,323	18.5	4.5	0.9	559	6.0	2.7	1.4	274	8.2	17.3	20.9	2,489	52.5
Average Per User			22.5				18.8				17.3				57.3	
Median User			12.0				11.1				9.0				37.1	

NOTE: Detail may not add to totals because of rounding.

The user rate in 1978 among other races (32.7 per 1000 enrollees) was 17 percent higher than for whites (27.9 per 1000). Prior to 1977, the user rate had been higher for whites. The average number of visits per user was higher among other races (23.9) than for whites (22.4). The net result of these differences was that the visit rate among other races (782 per 1000 enrollees) was 25 percent higher than for whites (625 per 1000). Since the average charge per visit among other races ($30) was higher than for whites ($27), the financial value derived from the HHA benefit was much higher among other races than among whites. The rate of Medicare reimbursement for HHA services to other races ($21,100 per 1000 enrollees) was 36 percent higher than for whites ($15,500 per 1000).

MEDICARE STATUS

Overall, the aged used more HHA services in 1978 than did the disabled Medicare enrollees. The user rate among the aged (29.3 per 1000 enrollees) was about 44 percent higher than among the disabled (20.3 per 1000). Although the average disabled user of HHA services received more visits (25.3) than the aged user (22.3), the higher user rate among the aged resulted in a visit rate that was 28 percent greater among the aged (653 visits per 1000 enrollees) than among the disabled (512 per 1000). The charges and reimbursement rates among the aged were 27 percent higher than among the disabled. The reimbursement rate among the aged was $16,400 per 1000 enrollees compared to $13,100 among the disabled.

RESIDENCE

Table 5 shows that Medicare enrollees living in the metropolitan areas of the U.S. received more HHA services in 1978 than those living in nonmetropolitan areas. The user rate among enrollees living in metropolitan areas (31.5 per 1000 enrolled) was 45 percent higher than the user rate in nonmetropolitan areas (21.7 per 1000). Since users in nonmetropolitan areas average slightly more visits (23.3) than those in metropolitan areas (22.0), the difference in the overall visit rate was not as great as the difference in user rates. The visit rate in metropolitan areas (695 per 1000) was 38 percent greater than in nonmetropolitan areas (505 per 1000). The average charge per visit in metropolitan areas ($28) was 22 percent higher than in nonmetropolitan areas ($23). This difference coupled with the greater user rate in metropolitan areas caused the financial value derived from the HHA benefit to be much higher among enrollees in metropolitan areas than in nonmetropolitan areas. The rate of reimbursements for HHA services in metropolitan areas ($18,200 per 1000 enrollees) was 67 percent higher than in nonmetropolitan areas ($10,900 per 1000).

Metropolitan/nonmetropolitan differences in the distribution of HHA benefits were narrowest in the census divisions of the Northeast, particularly in the New England States. In the New England States the reimbursement rate in metropolitan areas ($21,000 per 1000 enrollees) was only 5 percent greater than the rate in nonmetropolitan areas ($20,000 per 1000). The widest metropolitan/nonmetropolitan differences in the distribution of the HHA benefit were in the North Central States. In both the East and West North Central census divisions, the reimbursement rate in metropolitan areas was more than double the rate in nonmetropolitan areas.

TYPE OF COVERAGE

As noted earlier, HHA benefits are available under both the hospital insurance (HI) program and supplementary medical insurance (SMI) programs. When the limit of 100 visits under the HI program is reached, services can be provided under SMI.[7] Thus, covered individuals may use HHA services under either or both programs. Table 6 shows how the use of HHA visits in 1978 were distributed by programs. The services are recorded in the year in which the services were used. Thus, persons recorded as receiving visits in 1978 under HI and SMI may have used some of the 100 HHA visits allowed in a benefit period under HI during 1977. Also, persons may have received HHA visits under HI and/or SMI during more than one episode of illness in 1978. Thus, in any given year, persons using HHA services under HI and SMI need not have used up the limit of 100 visits under HI before receiving services under SMI.

[7] These limits on the number of visits were removed by the Omnibus Reconciliation Act of 1980 (P.L. 96-499).

Table 6 shows that a small number of users account for the major share of the HHA visits furnished in 1978. About 12 percent of the users received 50 or more HHA visits and accounted for over 46 percent of all visits. In contrast, about 43 percent of the users received less than 10 visits and accounted for less than 9 percent of all HHA visits. Half of the persons receiving HHA visits received 12 visits or less. This skewness in the distribution of HHA services characterizes the distribution of Medicare benefits, in general. In 1978, among the aged, about 21 percent of the persons receiving any Medicare reimbursements received $2,000 or more in reimbursements and accounted for over 80 percent of the total amount reimbursed. Among the disabled, persons who received $2,000 or more in reimbursements accounted for 24 percent of the persons reimbursed and 85 percent of the amount reimbursed.[8]

Persons receiving visits only under HI accounted for 64 percent of all users and 53 percent of the visits. The average number of visits received was almost 19 per user. Half of the persons receiving HHA visits only under HI received 11 visits or less.

Persons receiving HHA visits only under SMI accounted for a fourth of the users and less than a fifth of the visits. The average user received about 17 visits. Half of the users received 9 visits or less. Persons receiving HHA visits under HI and SMI accounted for 11 percent of the users but accounted for 27 percent of all visits. The average person receiving HHA services under HI and SMI received about 57 visits. Half of all users received 37 visits or less.

Home Health Agency Services by Type of Agency

The process of certifying home health agencies to participate in the Medicare program and qualify to receive payment for services furnished to program beneficiaries identifies eight types of agencies[9]:

1. Visiting Nurse Association
2. Combination Government and Voluntary Agency
3. Official Health Agency
4. Hospital Based Program
5. Proprietary
6. Private Nonprofit
7. Rehabilitation Facility-Based Program
8. Skilled Nursing Facility-Based Program

Because of their small numbers, the last two types, for the purposes of this report, are combined with agencies not otherwise specified under the rubric "other". "Official" agencies are those operated by State and local governments and are denoted in this report under the rubric, "government agencies".

Proprietary agencies are those which are not exempt from Federal income taxation under section 501 of the Internal Revenue Code of 1954. To be certified under the Medicare program, proprietary agencies must be licensed pursuant to State law. If no State law exists for the licensure of a proprietary home health agency, it cannot be certified for participation in the Medicare programs.[10]

Geographic Distribution of Home Health Agencies by Type of Agency

Table 7 shows the number and geographic distribution of home health agencies under the Medicare program as of June 30, 1978. On that date, 2,834 agencies were certified to receive Medicare reimbursements for home health services furnished to Medicare beneficiaries. The largest number (1,299—almost 46 percent of the total) were government agencies.

Some types of agencies tend to be concentrated in certain areas. In 1978, almost 43 percent of all visiting nurse associations (VNA) were located in the New England States where they constituted almost two-thirds of the HHAs. In the Middle Atlantic States, VNAs constituted almost one-third of all HHAs. Thus, VNAs tend to be concentrated in the densely populated Northeast as 61 percent of all VNAs are located there.

Government agencies tend to be the dominant type of agency in the less densely populated areas of the country. In the West North Central division (33 persons per square mile), East South Central division (77 persons per square mile), West South Central division (51 persons per square mile), and in the Mountain States (12 persons per square mile) the government agencies constituted almost 65 percent of the agencies certified in these areas (751 of 1,168).[11]

Over 90 percent of the proprietary agencies were located in the census divisions of the South and West. In the West they constituted about one-fourth of all HHAs, the largest proportion among all agencies. Almost 57 percent of the private nonprofit agencies are located in the South where they constituted about 63 percent of all agencies.

Persons Served and Visits by Type of Agency and Census Division

Table 8 shows the distribution of persons served and visits by type of HHA and census division. In relating the data in Table 8 to the data in Table 7, the reader should bear in mind that the data in Table 8 reflects all HHA visits furnished during 1978. The

[8] "Medicare Summary: Use and Reimbursement by Person, 1976-1978" (in press).

[9] The Conditions of Participation for Home Health Agencies are specified in the Code of Federal Regulations: 42CFR 405, Subpart L, Revised as of October 1, 1979.

[10] The State licensure requirement as a condition of participation for proprietary HHAs was removed by the Omnibus Reconciliation Act of 1980 (P.L. 96-499).

[11] Population densities from U.S. Bureau of the Census, Statistical Abstract of the United Sates: 1978. See Table 11.

TABLE 7
Number of Certified Home Health Agencies by Census Division and Type of Agency, June 1978

Census Division	Type of Home Health Agency							
	Total	Visiting Nurse Association	Combined Government/ Voluntary	Government	Hospital Based	Proprietary	Private Nonprofit	Other
Total	2,834	508	50	1,299	343	161	405	68
New England	331	218	6	57	24	0	18	8
Middle Atlantic	285	92	5	80	81	1	20	6
East North Central	425	86	10	206	42	14	59	8
West North Central	326	21	8	223	49	0	16	9
South Atlantic	392	33	4	171	29	37	103	15
East South Central	404	4	5	266	36	25	64	4
West South Central	314	11	3	185	14	27	66	8
Mountain	124	9	6	67	22	6	10	4
Pacific	203	33	2	42	41	50	29	6
Other Areas [1]	30	1	1	2	5	1	20	0
	Percent Distribution by Type of Agency							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England	11.7	42.9	12.0	4.4	7.0	0.0	4.4	11.8
Middle Atlantic	10.1	18.1	10.0	6.2	23.6	0.6	4.9	8.8
East North Central	15.0	16.9	20.0	15.9	12.2	8.7	14.6	11.8
West North Central	11.5	4.1	16.0	17.2	14.3	0.0	4.0	13.2
South Atlantic	13.8	6.5	8.0	13.2	8.5	23.0	25.4	22.1
East South Central	14.3	0.8	10.0	20.5	10.5	15.5	15.8	5.9
West South Central	11.1	2.2	6.0	14.2	4.1	16.8	16.3	11.8
Mountain	4.4	1.8	12.0	5.2	6.4	3.7	2.5	5.9
Pacific	7.2	6.5	4.0	3.2	12.0	31.1	7.2	8.8
Other Areas [1]	1.0	0.2	2.0	0.1	1.5	0.6	4.9	0.0
	Percent Distribution by Census Division							
Total	100.0	17.9	1.8	45.8	12.1	5.7	14.3	2.4
New England	100.0	65.9	1.8	17.2	7.3	0.0	5.4	2.4
Middle Atlantic	100.0	32.3	1.8	28.1	28.4	0.4	7.0	2.1
East North Central	100.0	20.2	2.4	48.5	9.9	3.3	13.9	1.9
West North Central	100.0	6.4	2.5	68.4	15.0	0.0	4.9	2.8
South Atlantic	100.0	8.4	1.0	43.6	7.4	9.4	26.3	3.8
East South Central	100.0	1.0	1.2	65.8	8.9	6.2	15.8	1.0
West South Central	100.0	3.5	1.0	58.9	4.5	8.6	21.0	2.6
Mountain	100.0	7.3	4.8	54.0	17.7	4.8	8.1	3.2
Pacific	100.0	16.3	1.0	20.7	20.2	24.6	14.3	3.0
Other Areas [1]	100.0	3.3	3.3	6.7	16.7	3.3	66.7	0.0

[1] Includes Puerto Rico, Virgin Islands, and Guam
Note: Detail may not add to total because of rounding.

TABLE 8
Home Health Agency Services: Distribution of Persons Served and Visits Furnished by Type of Agency and Census Division, 1978

(All Numbers in Thousands)

Census Division	Persons Served								Visits							
	Total	VNA	Comb	Gov't	Hosp	Prop	PNP	Other	Total	VNA	Comb	Gov't	Hosp	Prop	PNP	Other
Total	756.0	295.5	20.9	152.1	85.9	37.5	151.7	12.5	16,888	6,287	374	3,052	1,816	925	4,133	301
New England	72.4	55.4	0.2	4.0	4.2	0.1	5.5	3.0	1,789	1,382	2	98	116	1	116	73
Middle Atlantic	181.1	86.5	5.3	31.5	41.3	0.3	15.0	1.3	4,067	1,945	88	729	904	7	363	30
East North Central	113.6	52.2	4.6	26.4	6.9	1.5	21.0	1.1	2,338	923	76	462	118	49	681	28
West North Central	48.3	14.3	4.4	15.4	6.5	0.1	6.6	1.0	1,156	349	93	351	134	1	199	28
South Atlantic	121.7	27.5	1.2	30.6	6.0	4.8	49.3	2.3	2,704	520	21	595	129	103	1,278	59
East South Central	47.7	4.7	0.2	19.1	4.1	3.4	15.7	0.5	1,235	104	4	365	102	90	563	6
West South Central	49.4	9.7	0.1	6.5	2.0	8.2	20.7	2.2	1,270	231	1	104	61	274	537	61
Mountain	27.1	6.7	4.4	9.2	3.9	0.6	2.2	*	551	128	82	196	71	14	59	1
Pacific	94.8	38.5	0.5	9.5	11.0	18.6	15.8	1.0	1,779	705	5	153	179	385	336	15
	Percent Distribution By Type of Agency[1]															
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England	9.6	18.7	0.8	2.6	4.9	0.2	3.7	24.1	10.6	22.0	0.6	3.2	6.4	0.1	2.8	24.2
Middle Atlantic	24.0	29.3	25.5	20.7	48.0	0.7	9.9	10.8	24.1	30.9	23.7	23.9	49.8	0.7	8.8	9.8
East North Central	15.0	17.7	21.9	17.4	8.0	4.0	13.8	8.5	13.8	14.7	20.4	15.1	6.5	5.3	16.5	9.4
West North Central	6.4	4.8	21.3	10.1	7.6	0.2	4.4	8.2	6.8	5.6	25.0	11.5	7.4	0.1	4.8	9.2
South Atlantic	16.1	9.3	5.6	20.1	7.0	12.8	32.5	18.3	16.0	8.3	5.5	19.5	7.1	11.1	30.9	19.6
East South Central	6.3	1.6	0.9	12.6	4.8	9.1	10.4	3.7	7.3	1.7	1.1	12.0	5.6	9.8	13.6	2.0
West South Central	6.5	3.3	0.4	4.3	2.3	21.9	13.6	17.9	7.5	3.7	0.4	3.4	3.4	29.6	13.0	20.4
Mountain	3.6	2.3	21.0	6.1	4.6	1.7	1.4	0.2	3.3	2.0	2.9	6.4	3.9	1.6	1.4	0.2
Pacific	12.5	13.0	2.5	6.2	12.8	49.6	10.4	8.3	10.5	11.2	1.4	5.0	9.9	41.6	8.1	5.1
	Percent Distribution By Census Division[1]															
Total	100.0	39.1	2.8	20.1	11.4	5.0	20.1	1.7	100.0	37.2	2.2	18.1	10.8	5.5	24.5	1.8
New England	100.0	76.5	0.2	5.5	5.9	0.1	7.7	4.2	100.0	77.3	0.1	5.5	6.5	0.1	6.5	4.1
Middle Atlantic	100.0	47.8	2.9	17.4	22.8	0.1	8.3	0.7	100.0	47.8	2.2	17.9	22.2	0.2	8.9	0.7
East North Central	100.0	45.9	4.0	23.3	6.0	1.3	18.5	0.9	100.0	39.5	3.3	19.7	5.0	2.1	29.2	1.2
West North Central	100.0	29.6	9.2	31.8	13.4	0.1	13.7	2.1	100.0	30.2	8.1	30.3	11.6	0.1	17.3	2.4
South Atlantic	100.0	22.6	1.0	25.2	5.0	3.9	40.5	1.9	100.0	19.2	0.8	22.0	4.8	3.8	47.3	2.2
East South Central	100.0	9.9	0.4	40.0	8.7	7.1	33.0	1.0	100.0	8.4	0.3	29.6	8.2	7.3	45.6	0.5
West South Central	100.0	19.7	0.2	13.1	4.0	16.6	41.9	4.5	100.0	18.2	0.1	8.2	4.8	21.6	42.3	4.8
Mountain	100.0	24.8	16.2	34.0	14.6	2.4	8.0	0.1	100.0	23.2	14.9	35.5	13.0	2.6	10.8	0.1
Pacific	100.0	40.6	0.6	10.0	11.6	19.6	16.6	1.1	100.0	39.6	0.3	8.6	10.1	21.7	18.9	0.9

[1]Based on Unrounded Numbers

NOTE: Detail may not add to total benefits because of rounding.
*less than 50

count of HHAs in Table 7 is based on the situation on a specific date. Table 8 may show services furnished by a specific type of agency in an area, where Table 7 shows none was certified. This simply means that such an agency operated for part of the year but not on the date reflected in the counts shown in Table 7.

VNAs served over three-fourths of the persons receiving HHA services and provided the same proportion of the visits in New England. About 48 percent of the persons served and visits in the Middle Atlantic States were provided by VNAs. Thus, the provision of HHA services in the Northeast was dominated by VNAs.

The VNAs also dominated the provision of HHA services in the East North Central and Pacific States. In those divisions, VNAs accounted for about 40 percent of the persons served and visits furnished. Whereas the New England and Middle Atlantic States represented about half of the activity of the VNAs, the East North Central and Pacific States represented 30 percent of the persons served by VNAs and about a fourth of the visits.

Hospital-based HHAs were most active in the Middle Atlantic States. About half of the persons served and visits furnished by these agencies were in this division. They provided about a fifth of all visits made in the Middle Atlantic States. About 70 percent of the activity of proprietary agencies took place in the West South Central and Pacific States. They accounted for about one fifth of the visits furnished in those divisions.

Private nonprofit agencies are the biggest factor in the provision of home health services in the South. In the three divisions of the South, these agencies served about 39 percent of the persons receiving HHA visits and furnished about 46 percent of the visits. About 56 percent of all the activity by private nonprofit agencies took place in the South.

Because of their large numbers, government agencies are significantly active in all census divisions. Because of their large concentration in the less densely populated divisions, an examination of services furnished by government agencies in nonmetropolitan areas provides a better insight into the locale of these agencies' activities.

Home Health Services in Metropolitan and Nonmetropolitan Areas by Type of Agency

The purpose of Table 9 is to contrast the different types HHAs by their activities in metropolitan and nonmetropolitan areas. The overall differences in the rates of services furnished and reimbursements received in the metropolitan and nonmetropolitan areas of each census division were shown in Table 5. About three-fourths of the persons served and the visits furnished by HHAs are in metropolitan areas. About 78 percent of the visit charges and HHA reimbursements are generated in metropolitan areas.

TABLE 9
Home Health Agency Services: Persons Served, Visits, Charges, and Reimbursements by Known Type of Residence of Persons Served and Type of Agency, 1978

(Visits, Charges and Reimbursements in Thousands)

Type of County	Person Served		Visits			Charges					Reimbursements			
						Visit Charges								
	Total	Percent of Person Total	Total	Percent of Total	Per Person Served	Total	Total	Percent of Total	Per Visit	Per Person Served	Total	Percent of Total	Percent of Total Charges	Per Person Served
All Agencies[1]														
Total	756,047	100.0	16,888	100.0	22.3	$478,673	$455,673	100.0	$27	$602	$422,275	100.0	88.2	$559
Metropolitan	576,097	76.2	12,698	75.2	22.0	373,846	356,653	78.4	28	619	322,006	78.6	88.8	576
Nonmetropolitan	179,950	23.8	4,190	24.8	23.3	104,827	98,435	21.6	23	547	90,269	21.4	86.1	502
Visiting Nursing Association														
Total	295,502	100.0	6,287	100.0	21.3	152,588	147,900	100.0	24	501	142,017	100.0	93.1	481
Metropolitan	264,712	89.6	5,537	88.1	20.9	137,606	133,363	90.2	24	504	128,711	90.6	93.5	486
Nonmetropolitan	30,790	10.4	750	11.9	24.4	14,982	14,537	9.8	19	472	13,306	9.4	88.8	432
Combined Government and Voluntary Agency														
Total	20,857	100.0	374	100.0	17.9	9,845	9,441	100.0	25	453	9,361	100.0	95.1	449
Metropolitan	19,022	91.2	338	90.4	17.8	9,168	8,794	93.1	26	462	8,740	93.4	95.3	459
Nonmetropolitan	1,835	8.8	36	9.6	19.6	677	647	6.9	18	353	621	6.6	91.7	338
Government Agencies														
Total	152,110	100.0	3,052	100.0	20.1	70,563	67,490	100.0	22	444	66,235	100.0	93.9	435
Metropolitan	73,290	48.2	1,433	47.0	19.6	33,714	32,656	48.4	23	446	32,303	48.8	95.8	441
Nonmetropolitan	78,820	51.8	1,619	53.0	20.5	36,849	34,834	51.6	22	442	33,932	51.2	92.1	430
Hospital-Based Agencies														
Total	85,922	100.0	1,816	100.0	21.1	63,941	57,618	100.0	32	671	56,634	100.0	88.6	659
Metropolitan	64,862	75.5	1,342	73.9	20.7	51,073	45,836	79.6	34	707	45,484	80.3	89.1	701
Nonmetropolitan	21,060	24.5	474	26.1	22.5	12,867	11,783	20.5	25	599	11,150	19.7	86.7	529
Proprietary Agencies														
Total	37,452	100.0	925	100.0	24.7	31,640	29,351	100.0	32	784	25,346	100.0	80.1	677
Metropolitan	30,480	81.4	731	79.0	24.0	25,711	24,177	82.4	33	793	20,674	81.6	80.4	678
Nonmetropolitan	6,972	18.6	194	21.0	27.8	5,929	5,174	17.6	27	742	4,672	18.4	78.8	670
Private Nonprofit Agency														
Total	151,725	100.0	4,133	100.0	27.2	141,912	135,349	100.0	33	892	115,580	100.0	81.4	762
Metropolitan	116,818	77.0	3,151	76.2	27.0	112,068	107,445	79.4	34	920	92,110	79.7	82.2	788
Nonmetropolitan	34,907	23.0	983	23.8	28.2	29,844	27,903	20.6	28	799	23,470	20.3	78.6	672

NOTE: Detail may not add to totals because of rounding.

[1] Includes other types of home health agencies not shown separately.

VNAs and combined government and voluntary agencies (which are often VNAs with government financial support) showed the highest level of activity in metropolitan areas—about 90 percent of persons served, visits furnished, and charges and reimbursements generated took place in metropolitan areas. With the exception of government agencies, each of the other types of HHAs showed between 75-80 percent of the persons served, visits furnished, and charges and reimbursements generated in metropolitan areas.

Government HHAs showed a striking divergence from the patterns shown by the other types of agencies. Over half of the persons served by these agencies (51.8 percent), visits furnished (53.0 percent) and charges and reimbursements generated (about 51 percent) took place in nonmetropolitan areas. Almost 44 percent of the persons receiving home health services in nonmetropolitan areas received them from government agencies. These agencies also provided 39 percent of the visits, and accounted for 38 percent of the reimbursements generated in nonmetropolitan areas. These finding are not surprising since, as was discussed in relation to Table 7, a large proportion of these agencies are located in census divisions with low population densities and constitute most of the agencies operating in these areas. Since government agencies have an average visit charge that is below the national average, this may explain a substantial part of the difference in the average charge per visit in metropolitan ($28) and nonmetropolitan areas ($23).

Table 9 shows that charges by proprietary and private nonprofit agencies were reimbursed at a significantly lower level than the other agencies. All other types of HHAs were reimbursed at a rate ranging from 89 to 95 percent of charges. About 80 percent of the charges by proprietary agency and 81 percent of the charges by private nonprofit agencies were reimbursed. This probably reflected a schedule of charges set further above costs than in the case of other agencies. Since an agency must apply the same schedule of charges to all its clients, the schedule of charges used by private nonprofit proprietary agencies may reflect a strategy for generating revenue from private payers.

Number of Visits by Type of Agency

Table 10 shows the number of visits used by persons served by each type of agency and the reimbursements generated. The proportion of the clientele receiving 50 or more home health visits was highest among proprietary (13.2 percent) and private nonprofit (16.4 percent) agencies. Among the other agencies, the percentage of clients receiving this number of visits ranged from 9.1 to 11.2 percent. Among private nonprofit agencies, persons receiving 50 or more visits accounted for 51 percent of the visits furnished and 50 percent of the reimbursements. Among the other agencies, the proportion of reimbursements generated by persons receiving 50 or more visits ranged from 39.9 percent among hospital-based agencies to 44.5 percent among VNAs. Nationally, the proportion of reimbursements derived from visits furnished to clients receiving 50 or more visits was 44.8 percent. Private nonprofit agencies were the only type agency to exceed the national averages.

Table 11 highlights the extent to which proprietary and private nonprofit agencies provided more visits to their clientele than did other agencies. At each noted percentile of persons served, the number of visits furnished by proprietary and private nonprofit agencies was higher than for the other types—the private nonprofit agencies being highest of all.

Distribution of Home Health Visits and Charges by Type of Visit and Type of Agency

Table 12 presents data on the differences between agencies in the distribution of visits provided to persons served and the charges generated by type of visits. The data highlights again that proprietary and private nonprofit agencies differ from the other types of agencies in the pattern of home health visits provided.

A lower percent of the clientele served by proprietary (91.7 percent) and private nonprofit (93.2 percent) agencies received nursing visits than provided by the other type agencies. The other major type agencies (excluding "other" agencies) provide nursing visits to over 96 percent of their clientele. Proprietary and private nonprofit agencies furnish home health aide and physical therapy visits to a higher proportion of their clientele than do the other major agencies. This is particularly notable with respect to home health aide visits. The proportion of clients receiving home health aide visits from proprietary (49.3 percent) and private nonprofit (45.9 percent) agencies far exceeded the proportion among the other major agencies (none higher than 31 percent). Proprietary and private nonprofit agencies provided physical therapy services to almost 29 percent of their clients compared to an average of 21 percent for the other agencies. Thus, given the lower percentage of clients receiving nursing services in proprietary and private nonprofit agencies it appears that for a higher proportion of clients served by these agencies physical therapy is the qualifying service for home health benefits.

The proportion of all visits accounted for by home health aide and physical therapy visits is much higher for the proprietary (49.3 percent) and private nonprofit (45.2 percent) than for the other major agencies (all less than 40 percent).

The above pattern of services is reflected in the distribution of visit charges generated by the different agencies. The proportion of total charges generated by home health aide and physical therapy visits is higher for the proprietary (44.6 percent) and private nonprofit (42.2 percent) agencies than for the others (none over 37 percent).

To assess the overall impact of these patterns, one must examine, too, the average number of visits and the average charge for each type of visit. Except for the average number of nursing care visits furnished per person served by private nonprofit agencies (15 compared to less than 13 for the other major type agencies) there is no great difference among the agencies in the average number of visits provided per person served for the different types of visits. Since there were notable variations in the proportion of persons receiving each type of visit, the relative consistency in

TABLE 10
Home Health Agency Services: Persons Served, Visits, Total Charges and Reimbursements Distributed by Type of Agency and Number of Visits to Persons Served, 1978

Number of Visits to Persons Served	Persons Served		Visits (000)		Total Charges[1]		Reimbursements (000)	
	Number	Percent	Number	Percent	Amount	Percent	Amount	Percent
	All Agencies[2]							
Total	769.7	100.0	17,345	100.0	$500,747	100.0	$435,322	100.0
1-9	328.1	42.6	1,496	8.6	44,350	8.9	38,951	8.9
10-19	173.4	22.5	2,403	13.9	71,142	14.2	62,485	14.4
20-29	88.8	11.5	2,139	12.3	63,044	12.6	55,331	12.7
30-39	52.6	6.8	1,792	10.3	52,701	10.5	45,964	10.6
40-49	33.9	4.4	1,500	8.7	43,597	8.7	37,846	8.7
50-99	68.3	8.9	4,693	27.1	134,831	26.9	116,077	26.7
100 and over	24.6	3.2	3,323	19.2	91,081	18.2	78,668	18.1
	Visiting Nurse Association							
Total	297.6	100.0	6,335	100.0	154,108	100.0	143,407	100.0
1-9	137.4	46.1	608	9.6	15,994	10.4	14,526	10.1
10-19	65.3	22.0	902	14.2	23,089	15.0	21,295	14.8
20-29	31.6	10.6	761	12.0	19,045	12.4	17,779	12.4
30-39	18.1	6.1	618	9.8	15,162	9.8	14,154	9.9
40-49	11.7	3.9	519	8.2	12,679	8.2	11,791	8.2
50-99	24.1	8.1	1,668	26.3	39,492	25.6	36,924	25.7
100 and over	9.2	3.1	1,259	19.9	28,647	18.6	26,939	18.8
	Combined Government and Voluntary Agency							
Total	21.3	100.0	391	100.0	10,586	100.0	9,852	100.0
1-9	11.3	52.9	49	12.5	1,447	13.7	1,354	13.7
10-19	4.3	20.1	59	15.1	1,681	15.9	1,576	16.0
20-29	2.0	9.2	47	12.0	1,268	12.0	1,186	12.0
30-39	1.1	5.3	39	9.9	1,052	9.9	976	9.9
40-49	0.7	3.4	32	8.1	878	8.3	801	8.1
50-99	1.4	6.7	97	24.8	2,509	23.7	2,308	23.4
100 and over	0.5	2.4	69	17.6	1,750	16.5	1,652	16.8
	Governmental Health Agency							
Total	152.2	100.0	3,053	100.0	70,583	100.0	66,254	100.0
1-9	71.4	47.0	323	10.6	8,179	11.6	7,551	11.4
10-19	34.1	22.4	470	15.4	11,558	16.4	10,788	16.3
20-29	16.4	10.8	394	12.9	9,532	13.5	8,948	13.5
30-39	9.0	5.9	307	10.1	7,260	10.3	6,845	10.3
40-49	5.8	3.8	256	8.4	5,851	8.3	5,548	8.4
50-99	11.4	7.5	772	25.3	17,009	24.1	16,009	24.2
100 and over	4.1	2.7	532	17.4	11,194	15.9	10,566	15.9
	Hospital-Based Agency							
Total	87.8	100.0	1,877	100.0	65,616	100.0	57,846	100.0
1-9	37.0	42.1	172	9.2	6,449	9.8	5,757	10.0
10-19	20.9	23.8	290	15.5	10,484	16.0	9,327	16.1
20-29	10.5	12.0	253	13.5	8,931	13.6	7,951	13.7
30-39	6.2	7.0	210	11.2	7,283	11.1	6,460	11.2
40-49	3.9	4.5	174	9.3	5,955	9.1	5,268	9.1
50-99	7.2	8.2	485	25.8	16,661	25.4	14,557	25.2
100 and over	2.2	2.5	293	15.6	9,852	15.0	8,525	14.7

(continued)

TABLE 10
Home Health Agency Services: Persons Served, Visits, Total Charges and Reimbursements Distributed by Type of Agency and Number of Visits to Persons Served, 1978

Number of Visits to Persons Served	Persons Served		Visits (000)		Total Charges[1]		Reimbursements (000)	
	Number	Percent	Number	Percent	Amount	Percent	Amount	Percent
				Proprietary Agency				
Total	37.5	100.0	925	100.0	31,642	100.0	25,348	100.0
1-9	13.7	36.5	65	7.1	2,426	7.7	1,941	7.7
10-19	8.9	23.8	125	13.6	4,466	14.1	3,606	14.2
20-29	4.9	13.0	118	12.7	4,142	13.1	3,348	13.2
30-39	3.1	8.4	107	11.6	3,724	11.8	3,007	11.9
40-49	1.9	5.2	85	9.2	2,932	9.3	2,342	9.2
50-99	3.7	9.9	253	27.3	8,614	27.2	6,850	27.0
100 and over	1.2	3.3	171	18.5	5,338	16.9	4,254	16.8
				Private Nonprofit Agency				
Total	160.9	100.0	4,464	100.0	160,024	100.0	125,510	100.0
1-9	52.5	32.6	256	5.7	9,254	5.8	7,298	5.8
10-19	36.9	23.0	517	11.6	18,742	11.7	14,923	11.9
20-29	21.9	13.6	529	11.8	19,067	11.9	15,212	12.1
30-39	14.1	8.7	479	10.7	17,329	10.8	13,759	11.0
40-49	9.2	5.7	408	9.1	14,605	9.1	11,497	9.2
50-99	19.4	12.1	1,339	30.0	48,418	30.3	37,577	29.9
100 and over	6.9	4.3	937	21.0	32.610	20.4	25,245	20.1

[1] Includes charges for medical supplies and equipment provided during course of visit. Charges incurred in absence of recorded visit counted under category of 1-9 visits. A total of $57,000 apportioned this way.

[2] Includes rehabilitation and skilled nursing facility based agencies.

TABLE 11
Home Health Agency Services: Persons Served, Visits, and Number at Selected Percentiles of Persons Served by Type of Agency, 1978

(Persons and Visits in Thousands)

Type of Agency	Persons Served	Visits		Percentiles				
		Number	Per Person Served	10th	25th	50th	75th	90th
All Agencies	769.7	17,345	22.5	2.3	5.1	12.0	27.7	55.7
Visiting Nurse Association	297.6	6,335	21.3	2.0	4.5	10.7	25.3	53.3
Combined Government and Voluntary	21.3	391	18.3	1.9	3.8	8.7	21.4	46.6
Government	152.2	3,053	20.1	2.1	4.5	10.4	24.0	49.8
Hospital-Based	87.8	1,877	21.4	2.4	5.3	12.1	26.7	50.4
Proprietary	37.5	925	24.7	2.9	6.3	14.5	31.2	58.4
Private Nonprofit	160.9	4,464	27.8	3.3	7.1	16.5	35.6	67.6
Other	12.5	300	24.1	2.3	5.6	13.3	29.9	58.2

TABLE 12
Home Health Agency Services: Persons Served, Visits, and Charges by Type of Visit and Type of Agency, 1978

Utilization and Type of Visit	All Agencies	Visiting Nursing Association	Combined Government and Voluntary	Government	Hospital-Based	Proprietary	Private Nonprofit	Other [1]
Persons Served (000) [2]								
Total	769.7	297.6	21.3	152.2	87.8	37.5	160.8	12.5
Nursing Care	735.9	288.6	20.7	146.4	84.4	34.4	149.8	11.7
Home Health Aide	261.4	92.3	5.7	43.5	24.2	18.5	73.8	3.4
Physical Therapy	178.3	64.2	4.1	26.8	24.0	10.8	46.2	2.2
Other [3]	95.9	34.6	1.7	9.0	13.3	8.2	28.1	1.2
Percent of Persons Served Receiving Visits [4]								
All Visits	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Nursing Care	95.6	97.0	97.2	96.2	96.1	91.7	93.2	93.6
Home Health Aide	34.0	31.0	26.8	28.6	27.6	49.3	45.9	27.2
Physical Therapy	23.2	21.6	19.3	17.6	27.3	28.8	28.7	17.6
Other [3]	12.5	11.6	8.0	5.9	15.2	21.9	17.5	9.6
Visits (000)								
Total	17,345	6,335	391	3,053	1,877	925	4,464	300
Nursing Care	9,661	3,658	225	1,792	1,087	433	2,270	196
Home Health Aide	5,326	1,910	106	951	471	337	1,480	70
Physical Therapy	1,736	543	39	242	235	119	535	24
Other [3]	623	225	20	68	85	36	179	10
Percent of Visits								
All visits	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Nursing Care	55.7	57.7	57.6	58.7	57.9	46.8	50.9	65.3
Home Health Aide	30.7	30.2	27.1	31.2	25.1	36.4	33.2	23.3
Physical Therapy	10.0	8.6	10.0	7.9	12.5	12.9	12.0	8.0
Other [3]	3.6	3.6	5.1	2.2	4.5	3.9	4.0	3.3
Visit Charges (000)								
Total	$474,498	$149,159	$10,028	$67,511	$58,949	$29,353	$151,557	$7,942
Nursing Care	276,361	90,853	6,424	43,752	34,394	14,830	80,653	5,454
Home Health Aide	124,773	38,330	2,093	16,308	13,726	8,761	43,963	1,593
Physical Therapy	53,097	13,484	996	5,648	7,924	4,328	20,064	652
Other [3]	20,268	6,492	515	1,803	2,905	1,434	6,877	242
Percent of Visit Charges								
All Visits	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Nursing Care	58.2	60.9	64.1	64.8	58.4	50.5	53.2	68.7
Home Health Aide	26.3	25.7	20.9	24.2	23.3	29.9	29.0	20.1
Physical Therapy	11.2	9.0	9.9	8.4	13.4	14.7	13.2	8.2
Other [3]	4.3	4.4	5.1	2.7	4.9	4.9	4.5	3.1
Average Number of Visits Per Person Served								
All Persons	22.5	21.3	18.3	20.1	21.4	24.7	27.8	24.1
Nursing Care	13.1	12.7	10.9	12.2	12.9	12.6	15.2	16.7
Home Health Aide	20.4	20.7	18.8	21.9	19.5	18.3	20.0	20.4
Physical Therapy	9.7	8.5	9.6	9.0	9.8	11.0	11.6	10.9
Other [3]	6.5	6.5	11.7	7.6	6.4	4.4	6.4	8.3
Average Charge Per Visit								
All Visits	$27	$24	$26	$22	$31	$32	$34	$26
Nursing Care	29	25	29	24	32	34	36	28
Home Health Aide	23	20	20	17	29	26	30	23
Physical Therapy	31	25	25	23	34	37	38	27
Other [3]	33	29	26	27	34	40	38	23
Average Visit Charges Per Person Served								
All Persons	$617	$501	$470	$444	$671	$784	$942	$636
Nursing Care	376	315	311	299	408	432	539	464
Home Health Aide	477	415	369	375	568	474	596	464
Physical Therapy	298	210	244	211	330	402	434	294
Other [3]	211	188	303	200	218	175	245	202

[1] Includes rehabilitation and skilled nursing facility-based agencies.
[2] Detail does not add to total since persons may receive more than one type of service.
[3] Includes speech or occupational therapy, medical social services, and other health disciplines.
[4] Sum of percentages greater than 100.0 because persons may receive more than one type visit.

the average number of visits per person served among the agencies suggests there was little practical substitutability among the different types of visits. Thus, adding another type of visit furnished to a given client appears to have had an additive effect on the average number of total visits furnished per person served. This supposition appears supported when the average number of total visits per person served is examined by type of agency. The average total number of visits per person served is higher for proprietary (24.7) and private nonprofit (27.8) agencies than for the other major agencies (none over 21.4). Thus, the average number of visits per person served is 15 percent greater for proprietary agencies and 30 percent greater for the private nonprofit agencies compared to the others.

Private nonprofit and proprietary agencies tend to run one-two in the average charge per visit for each type of visit. Overall, the average charge per visit for private nonprofit ($34) and proprietary agencies ($32) was higher than for the other agencies. Hospital-based HHAs were next highest with an average charge per visit of $31. The combined effect of higher number of visits per person served and higher charges per visit resulted in total visit charges incurred per person served by private nonprofit and proprietary agencies being much greater than for persons served by other HHAs. The average total visit charges for persons served by private nonprofit agencies ($942) were much higher than all other agencies (more than 50 percent above the national average of $617). The second highest amount, $784, was among proprietary agencies. This was more than $150 less than the private nonprofit agencies but still 27 percent above the national average. Among the other major type agencies, only hospital-based agencies showed average total visit charges ($671) above the national average—this was one-third higher than the next highest type agency (VNAs at $501) and reflected the higher average charge per visit ($31).

Table 13 relates the percent distributions of visits furnished, total visit charges, and total reimbursements to the percent of persons served by type of HHA. Three types of agencies gained a larger percentage of reimbursements than of persons served: hospital-based, proprietary, and private nonprofit agencies. Private nonprofit agencies gained a share of total HHA reimbursements (28.8 percent) that was almost 38 percent greater than their share of persons served (20.9 percent). The proprietary agencies accounted for a share of reimbursements (5.8 percent) that was 18 percent greater than the proportion of persons served (4.9 percent). The discrepancy for hospital-based agencies was 17 percent.

Conclusions

As it has since 1971, reimbursements for HHA services in 1978 increased at a faster rate than total Medicare reimbursements. However, reimbursements for HHA services still constituted a small share of total Medicare reimbursements, 1.8 percent in 1978. The percentage increase in total HHA reimbursements between 1977 and 1978 (18 percent) was the smallest since 1972 (16 percent).

Although the user rate in 1978 (28.3 per 1000 enrollees) reached its highest level since these reports began (1974), the 8 percent increase between 1977 and 1978 was the lowest rate of increase recorded during that period. Since there was no increase in the average number of visits per user (22.5), the visit rate among Medicare beneficiaries also had its lowest rate of increase since 1974, 9 percent (from 587 to 639 visits per 1000 enrollees). Thus, the data for 1978 pointed to a leveling off in the rate of increase in the use of HHA services noted since 1974. About 56 percent of the increase in charges for HHA visits between 1974 and 1978 is attributable to the increase in the number of persons receiving HHA visits. About 37.5 percent of the increase is attributable to higher charges per HHA visit.

This report demonstrated significant differences among the different types of agencies in the patterns of providing home health services. Private nonprofit agencies stand out most notably. In 1978, these agencies provided the highest average number of visits per person served and had the highest average charge per visit. Persons served by these agencies incurred average total visit charges ($942) that were over 52 percent greater than the national average ($617). Though these agencies served only 21 percent of the persons receiving home health services, they collected 29 percent of all Medicare reimbursements for home health services. These characteristics of private nonprofit agencies were evident in the earlier years (Callahan, 1981). This seems to point to the need for greater administrative attention and evaluation of the patterns of services furnished by these agencies and the amounts paid by the program.

TABLE 13
Percent Distribution of Persons Served, Visits Furnished, Total Visit Charges, and Total Reimbursements By Type of Agency, 1978

	Visiting Nurse Assoc.	Combined Gov't and Voluntary	Government	Hospital-Based	Proprietary	Private Nonprofit	Other
Persons Served	38.7	2.8	19.8	11.4	4.9	20.9	1.6
Visits Furnished	36.5	2.3	17.6	10.8	5.3	25.7	1.7
Total Visit Charges	31.4	2.1	14.2	12.4	6.2	31.9	1.7
Total Reimbursements [1]	32.9	2.3	15.2	13.3	5.8	28.8	1.6

[1] Includes reimbursements for all services.

Appendix A

DEPARTMENT OF HEALTH AND HUMAN SERVICES
HEALTH CARE FINANCING ADMINISTRATION

Form Approved
OMB No. 0938-0012

HOME HEALTH AGENCY REPORT AND BILLING
HOSPITAL AND MEDICAL INSURANCE BENEFITS—SOCIAL SECURITY ACT

NOTICE: Anyone who misrepresents or falsifies essential information requested by this form may upon conviction be subject to fine and imprisonment under Federal law.

1. PATIENT'S LAST NAME	FIRST NAME	MI	2. HEALTH INSURANCE CLAIM NUMBER

3. PATIENT'S ADDRESS (Street number, City, State, Zip Code)	4. DATE OF BIRTH	5. SEX
	__ __ / __ __ / __ __	☐ M ☐ F

6. HOME HEALTH AGENCY NAME AND ADDRESS	7. PROVIDER NO.	9. NAME AND ADDRESS OF ATTENDING PHYSICIAN
	8. MEDICAL RECORD NO.	

10. DATE CARE STARTED	11. NAME AND ADDRESS OF INSTITUTION, IF ANY, CARING FOR CONDITION LATER REQUIRING HOME HEALTH SERVICES	12. VERIFIED DATES OF STAY IN ITEM 11 FROM / TO	13. DATE HOME HEALTH PLAN ESTABLISHED
__ __ / __ __ / __ __		- - / - - / - - / - - / - - / - -	__ __ / __ __ / __ __

14. PAYMENT SOURCE FOR CHARGES TO PATIENT

A. ☐ SELF OR FAMILY C. ☐ BLUE CROSS BLUE SHIELD E. ☐ PUBLIC AGENCY (Give name)
B. ☐ PRIVATE INSURANCE D. ☐ EMPLOYER OR UNION F. ☐ OTHER (Explain)

15. PATIENT'S CERTIFICATION: AUTHORIZATION TO RELEASE INFORMATION AND PAYMENT REQUEST: I certify that the information given by me in applying for payment under Title XVIII of the Social Security Act is correct. I authorize release of all records required to act on this request. I request that payment of authorized benefits be made in my behalf.

SIGNATURE (Patient or authorized representative) (Signature by mark must be witnessed)	DATE

16. DIAGNOSES	EMPLOYMENT RELATED		LEAVE BLANK
	A. ☐ YES B. ☐ NO	(If yes, give name and address of employer.)	

17. STATEMENT COVERS PERIOD FROM / TO	18. DATE OF FIRST VISIT	DATE OF LAST VISIT	19. PATIENT	20. DATE APPLICABLE TO ITEM 19
- - / - - / - - / - - / - - / - -	- - / - - / - -	- - / - - / - -	☐ DISCHARGED ☐ STILL RECEIVES SERVICES ☐ DIED ☐ VISITS EXHAUSTED	__ __ / __ __ / __ __

21. STATEMENT OF SERVICES RENDERED	POST - HOSPITAL PLAN		MEDICAL PLAN		22. POST - HOSPITAL PLAN	23. MEDICAL PLAN
PRIMARY PURPOSE OF VISIT	NO. VISITS	CHARGES	NO. VISITS	CHARGES	A. TOTAL CHARGES	A. VERIFIED DEDUCTIBLE
A. Skilled Nursing Care		$		$		
B. Physical Therapy					B. REIMBURSEMENT RATE	B. VERIFIED COINSURANCE
C. Speech Therapy						
D. Occupational Therapy						
E. Medical Social Services					C. REIMBURSEMENT AMT. A TIMES B	C. TOTAL CHARGES
F. Home Health Aide						
G. Other Visits (Specify)						D. REIMBURSEMENT RATE
H. Total No. of Units of Service						
I. Charge per unit of Service $						E. C TIMES D
J. TOTALS		$		$		F. E LESS A
K. Other (Specify)						G. REIMBURSEMENT AMT. 80% OF F
						H. REFUND TO PATIENT
L. TOTAL CHARGES		$		$		
M. AMOUNT PAID BY PATIENT				$		I. NET AMOUNT TO AGENCY, G LESS H

I certify that required physician's certification and recertifications are on file.

SIGNATURE OF HOME HEALTH AGENCY REPRESENTATIVE	DATE FORWARDED	APPROVED BY	DATE APPROVED
	__ __ / __ __ / __ __		__ __ / __ __ / __ __

FORM HCFA-1487 (5) (11-69) (FORMERLY SSA-1487 (6))

Appendix B

Reliability of Estimates

The data used in this paper are estimates based on a 40 percent sample of the enrolled population and hence are subject to sampling variability. Tables C.1. through C.5. will enable the reader to obtain approximate standard errors for the estimates in this paper. The standard error is primarily a measure of sampling variability—that is, of the variation that occurs by chance because a sample rather than the whole population is used. To calculate the standard errors at a reasonable cost for the wide variety of estimates in this paper, it was necessary to use approximate methods. Thus, these tables should be used only as indicators of the order of magnitude of the standard errors for specific estimates.

The sample estimate and an estimate of its standard error permit us to construct interval estimates with prescribed confidence that the interval includes the average result of all possible samples (for a given sampling rate).

To illustrate, if all possible samples were selected, each of these were surveyed under essentially the same conditions *and an estimate and its estimated standard error were calculated from each sample,* then:

i. Approximately ⅔ of the intervals from one standard error below the estimate to one standard error above the estimate would include the average value of all possible samples. We call an interval from one standard error below the estimate to one standard error above the estimate a ⅔ confidence interval.

ii. Approximately 9/10 of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average value of all possible samples. We call an interval from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate a 90 percent confidence interval.

iii. Approximately 19/20 of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples. We call an interval from two standard errors below the estimate to two standard errors above the estimate a 95 percent confidence interval.

iv. Almost all intervals from three standard errors below the sample estimate to three standard errors above the sample estimate would include the average value of all possible samples.

The average value of all possible samples may or may not be contained in any particular computed interval. But for a *particular* sample, one can say *with specified confidence* that the average of all possible samples is included in the constructed interval.

Tables C.1. through C.5. show relative standard errors. To illustrate their use assume that we have 6.6 persons served per 1,000 enrolled and that the numerator of this rate is 27,000 persons served. Using linear interpolation in Table C.1., we find a relative standard error of .0076. The standard error of 6.6 persons served per 1,000 enrolled is thus 6.6 x .0076 = .050.

Table C.4. is for ratios, and Table C.5. is for estimated percentages. Both require knowledge of the number in the base of the estimate and may require double linear interpolation.

Appendix C

TABLE C.1.
Approximate Relative Standard Error of Estimated Number of Persons Served or Persons Served per 1,000 Enrolled

Estimated Persons Served or Persons Served in Numerator of Rate	Relative Standard Error
100	.12
200	.087
300	.070
500	.055
700	.046
1,000	.039
2,000	.027
3,000	.022
5,000	.017
7,000	.015
10,000	.012
20,000	.0087
30,000	.0071
50,000	.0055
70,000	.0046
100,000	.0039
200,000	.0027
300,000	.0022
500,000	.0017
700,000	.0015
1,000,000	.0012

TABLE C.2.
Approximate Relative Standard Error of Estimated Number of Visits or Estimated Mean Visits per Person Served

Estimated Total Visits or Visits in the Numerator of the Mean	Relative Standard Error
1000	.21
2000	.15
3000	.12
5000	.094
7000	.080
10,000	.068
20,000	.048
30,000	.040
50,000	.031
70,000	.026
100,000	.022
200,000	.016
300,000	.013
500,000	.010
700,000	.0087
1,000,000	.0073
2,000,000	.0052
3,000,000	.0043
5,000,000	.0034
7,000,000	.0029
10,000,000	.0024
20,000,000	.0017

TABLE C.3.
Approximate Relative Standard Error of Estimated Dollars, Estimated Mean Dollars per Person Served, or Estimated Dollars per 1,000 Enrolled

Estimated Dollars or Dollars in the Numerator of the Mean or Rate	Relative Standard Error
10,000	.24
20,000	.18
30,000	.15
50,000	.12
70,000	.10
100,000	.088
200,000	.065
300,000	.054
500,000	.043
700,000	.037
1,000,000	.032
2,000,000	.024
3,000,000	.020
5,000,000	.016
7,000,000	.014
10,000,000	.012
20,000,000	.0086
30,000,000	.0072
50,000,000	.0058
70,000,000	.0050
100,000,000	.0043
200,000,000	.0031
300,000,000	.0026
500,000,000	.0021

TABLE C.4.
Approximate Standard Error of Estimated Charges per Visit

Visits in Base (in Thousands)	Charges per Visit $10	$20	$30	$40	$50
1	2.5	4.2	6.0	7.8	9.6
2	1.8	3.1	4.4	5.6	6.9
3	1.5	2.6	3.6	4.7	5.7
5	1.2	2.0	2.8	3.7	4.5
7	1.0	1.7	2.4	3.1	3.8
10	.87	1.5	2.1	2.6	3.2
20	.64	1.1	1.5	1.9	2.3
30	.53	.88	1.2	1.6	1.9
50	.42	.70	.97	1.2	1.5
70	.36	.60	.83	1.1	1.3
100	.31	.51	.70	.89	1.1
200	.23	.37	.51	.64	.78
300	.19	.31	.42	.53	.65
500	.15	.24	.33	.42	.51
700	.13	.21	.28	.36	.43
1,000	.11	.18	.24	.30	.37
2,000	.082	.13	.18	.22	.27
3,000	.068	.11	.15	.18	.22
5,000	.054	.086	.12	.14	.17
7,000	.047	.074	.099	.12	.15
10,000	.040	.063	.084	.11	.13
20,000	.029	.046	.061	.076	.091

TABLE C.5.
Approximate Standard Error of Percent Distribution of Dollars

Percent	Dollars in Base of Percent (in Thousands)								
	$10,000	$20,000	$30,000	$50,000	$70,000	$100,000	$200,000	$300,000	$500,000
.01	.0066	.0048	.0041	.0032	.0028	.0024	.0018	.0015	.0012
.02	.0097	.0072	.0060	.0048	.0041	.0035	.0026	.0022	.0018
.03	.012	.0090	.0075	.0060	.0052	.0044	.0033	.0028	.0022
.05	.016	.012	.010	.0080	.0069	.0059	.0044	.0037	.0029
.07	.020	.015	.012	.0097	.0084	.0072	.0053	.0044	.0035
.1	.024	.018	.015	.012	.010	.0088	.0065	.0054	.0043
.2	.035	.026	.022	.018	.015	.013	.0096	.0080	.0064
.3	.045	.033	.028	.022	.019	.016	.012	.010	0080
.5	.059	.044	.037	.029	.025	.022	.016	.013	.011
.7	.072	.053	.044	.035	.031	.026	.019	.016	.013
1	.088	.065	.054	.043	.037	.032	.024	.020	.016
2	.13	.095	.080	.064	.055	.047	.035	.029	.023
3	.16	.12	.10	.080	.069	.059	.044	.036	.029
5	.21	.16	.13	.11	.091	.078	.058	.048	.039
7	.26	.19	.16	.13	.11	.094	.069	.058	.046
10	.31	.23	.19	.15	.13	.11	.083	.070	.056
20	.43	.32	.27	.21	.19	.16	.12	.098	.079
30	.51	.38	.32	.25	.22	.19	.14	.12	.093
50	.58	.43	.36	.29	.25	.21	.16	.13	.11
70	.55	.41	.34	.27	.24	.20	.15	.13	.10
90	.37	.27	.23	.18	.16	.13	.10	.084	.067

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